



# Power Platform App in a Day

Module 4: Microsoft Flow

Hands-on Lab Step-by-Step

September 2018

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# Microsoft Flow

## Lab Prerequisites

This is the fourth lab in a five-part series covering PowerApps, Common Data Service, and Flow. The assumption is that you have successfully completed the first three modules, or at least the initial part of setting up an environment as described in the overview – **"00-AppInADay Lab Overview.pdf"**.

If you have not completed the previous modules, you can use the partially completed version of the lab package in the "\Completed\Module3" folder. Follow the instructions in the document "Importing Module 3 Completed" before proceeding with this module, which will provision the app and the Common Data Service entity into your environment.

## Locale-specific differences in formulas



If your computer has its regional settings set to use the comma ',' for its decimal separator (like in much of Europe) your formulas will need to use a semicolon ';' instead of a comma. In this document, the location icon is used to indicate the alternate version of a function, to be used for European locales.

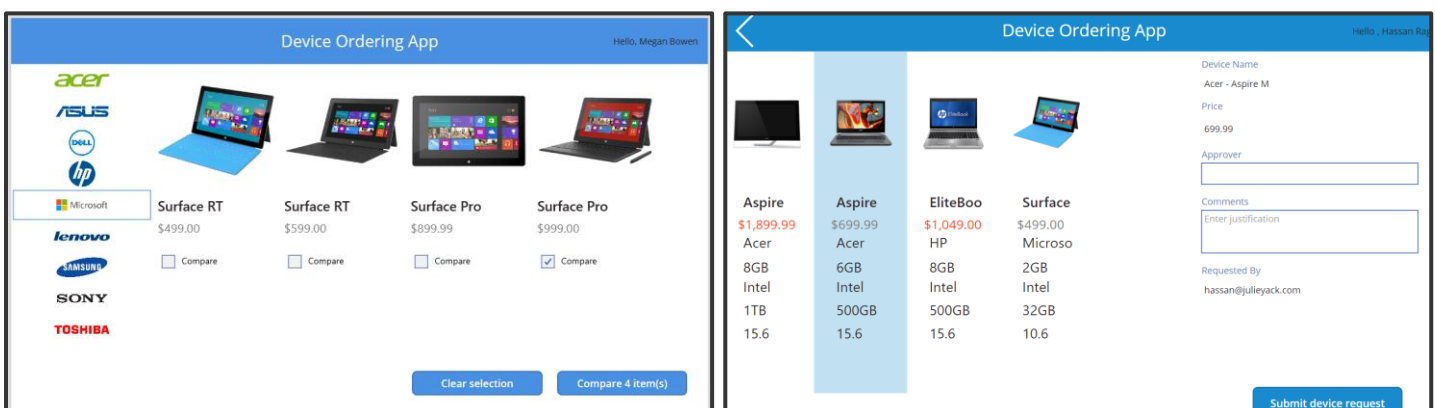
En-US      `Filter(Machines, OEMsGallery.Selected.MFR=MFR)`

de-DE      `Filter(Machines; OEMsGallery.Selected.MFR=MFR)`

## Integrating a PowerApps App with Flow

In this lab, you will create a Flow that uses the Modern Approvals service to automate the approval workflow – it will send an email to the selected approver and take an action based on their response.

You should already have an app with these two screens:



## Exercise 1: Create Approval Request Flow

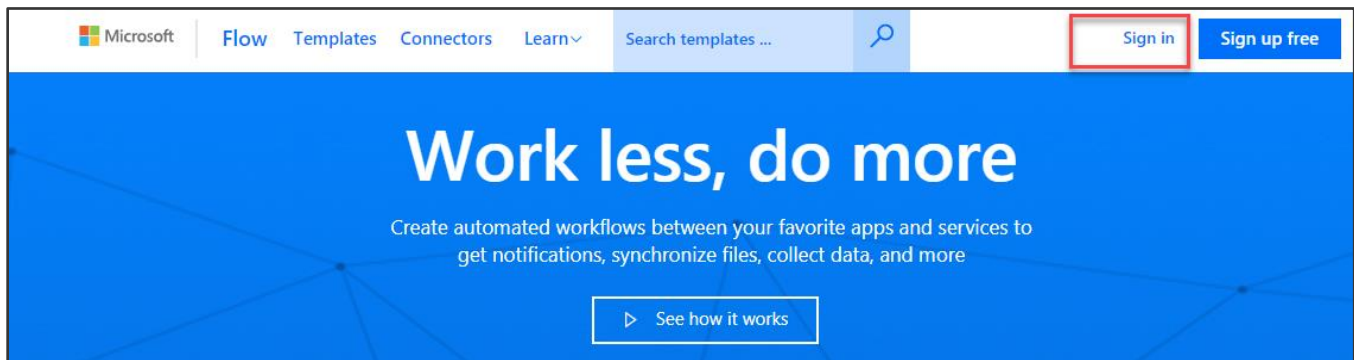
The flow will trigger when a new item is added to the **Device Order** entity table in the Common Data Service.

- It will use the Approvals Service to send an approval request.
- The approver will receive an email with options to Approve or Rejects and add comments.
- Once the approver responds, the record in the Device Order table will be updated with the appropriate approval status and comments.
- An email will be sent to the requester informing them whether the device was approved or rejected.

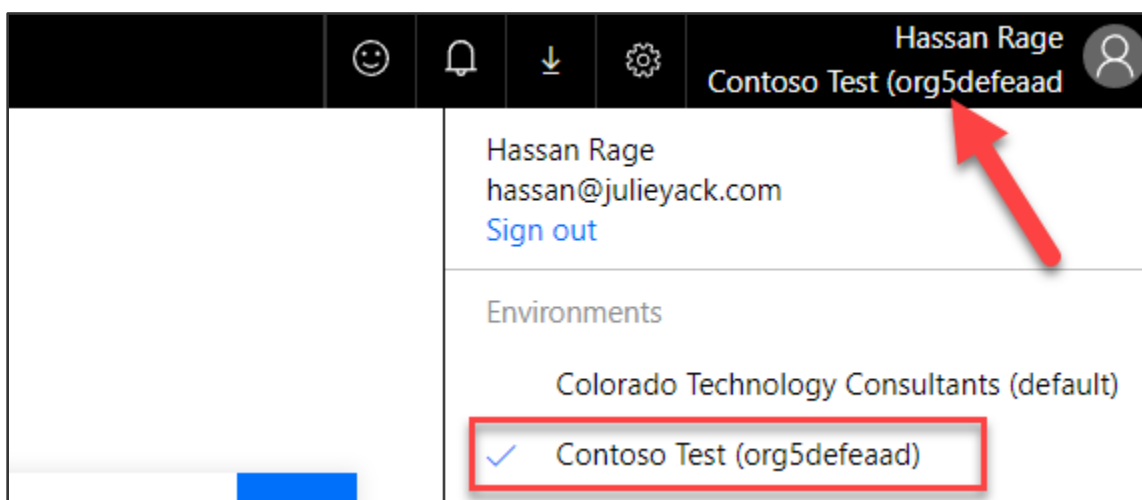
There are two ways to create a flow – from blank or from a template. In this lab, we will create the approval flow starting with a blank flow.

### Task 1: Login on Microsoft Flow website and create flow

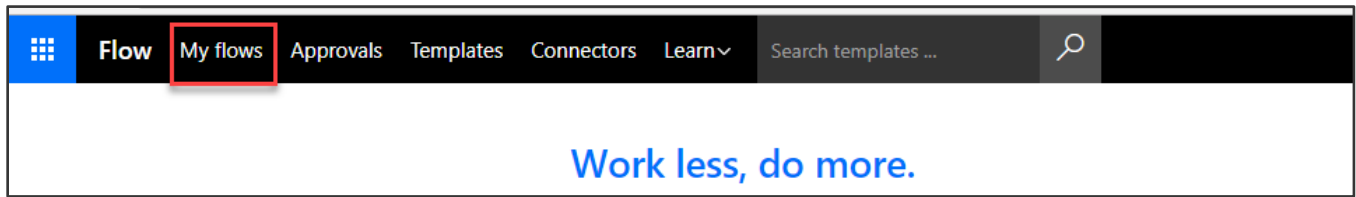
1. Navigate to <http://flow.microsoft.com> and sign in with your work or school account.



2. **Switch to the environment** where you created the Common Data Service database and the PowerApps app. To switch environments, click the top right of the screen that displays the username and current environment name.



3. Select **My flows**.



4. Select **Create from blank**



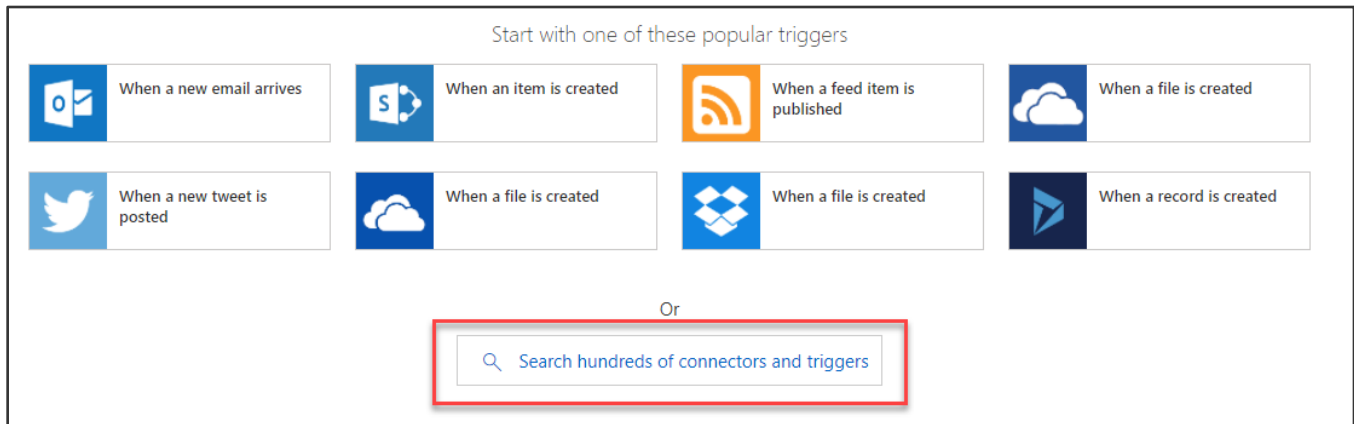
## Task 2: Configure the trigger

The first thing you will need to configure is the trigger, i.e. when should this flow run. A flow can be triggered:

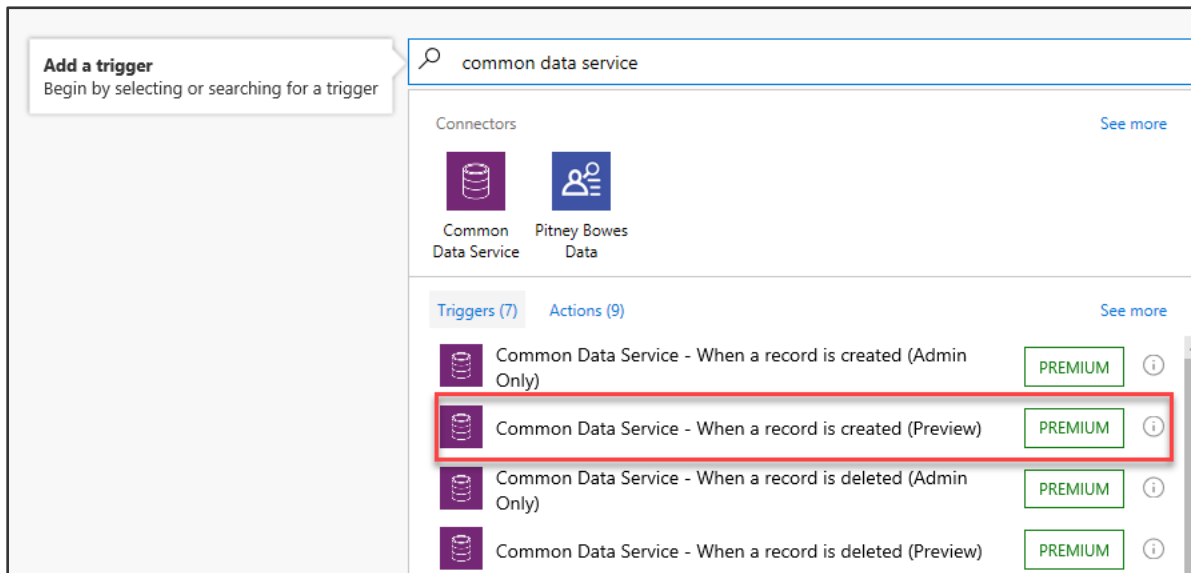
- manually from a PowerApps app,
- manually from a flow button
- on a fixed schedule, or
- when an event occurs, such as a new item being added to a table, a new email arriving in a user's inbox, a new tweet being posted that meets certain conditions, etc.

In this scenario, we will configure the flow to trigger when a **new item is added** to the **Device Order entity** table in the **Common Data Service**

- On the screen to select a trigger, click the **Search hundreds of connectors and triggers** option.

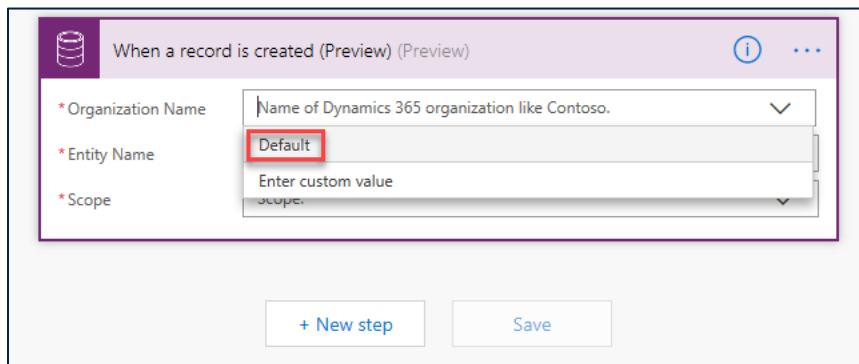


- Search for **Common Data Service** and select **Common Data Service – When a record is created**.



Note: Make sure you select the one that says (Preview) not the one that says (Admin). The Admin one requires Entity Change Tracking to be enabled on the entity before it will work, the preview one does not.

- Click the **Organization Name** drop-down and select **Default**.



When a record is created (Preview) (Preview)

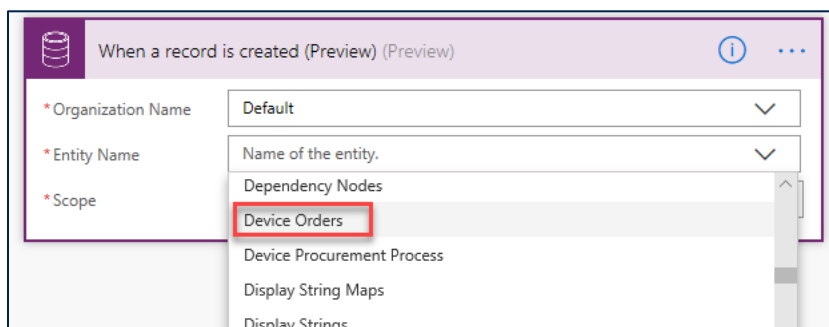
\* Organization Name: Name of Dynamics 365 organization like Contoso. (Dropdown menu open, showing 'Default' selected)

\* Entity Name: (Dropdown menu open, showing 'Enter custom value')

\* Scope: (Dropdown menu open, showing 'Scope')

+ New step Save

- Click the **Entity Name** drop-down and select **Device Orders**. You can type "device orders" to search for it.



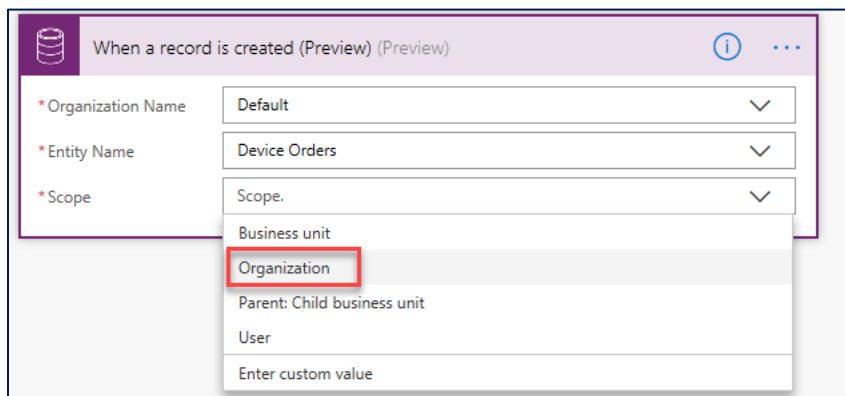
When a record is created (Preview) (Preview)

\* Organization Name: Default

\* Entity Name: Name of the entity. (Dropdown menu open, showing 'Device Orders' selected)

\* Scope: (Dropdown menu open, showing 'Device Orders' selected)

- Click the **Scope** drop-down and select **Organization**. Scope allows you to limit when your flow will run, for example you could choose User and it would only run for orders you create. In this case you are choosing organization because you want this flow to run for records created by anyone in your entire organization.



When a record is created (Preview) (Preview)

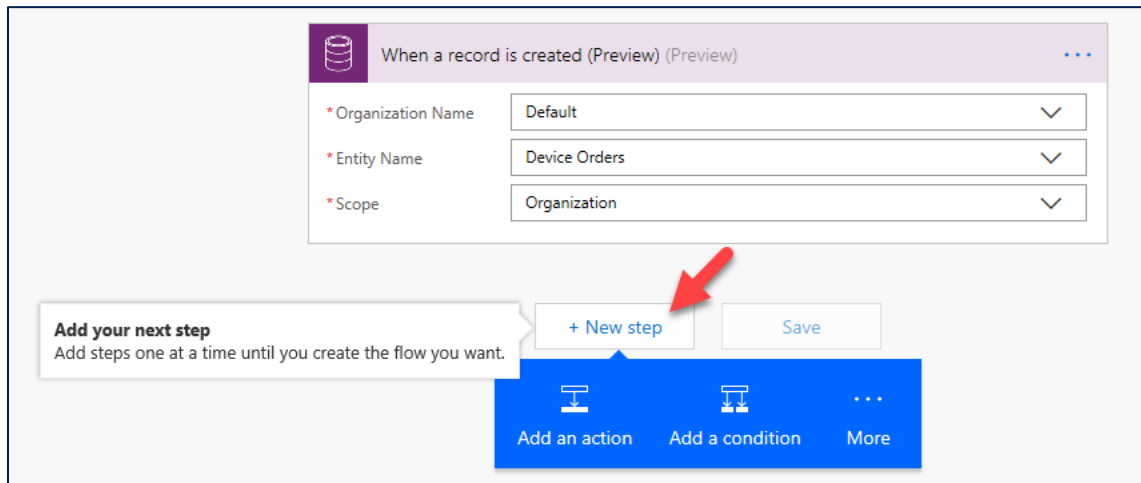
\* Organization Name: Default

\* Entity Name: Device Orders

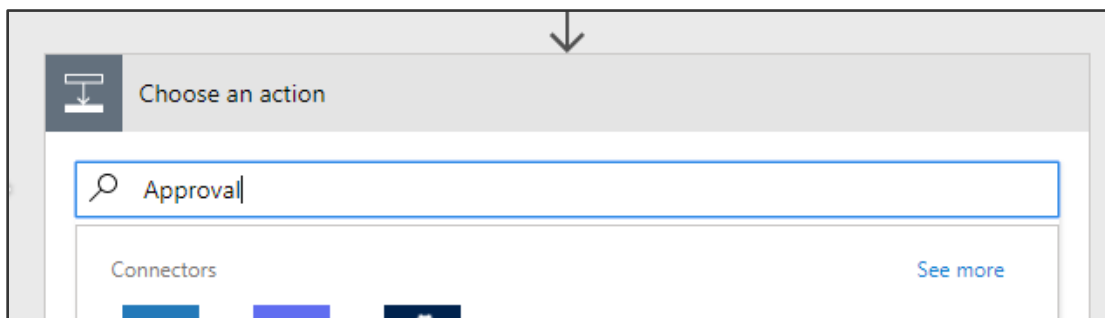
\* Scope: Scope. (Dropdown menu open, showing 'Organization' selected)

## Task 3: Add action to send an approval request

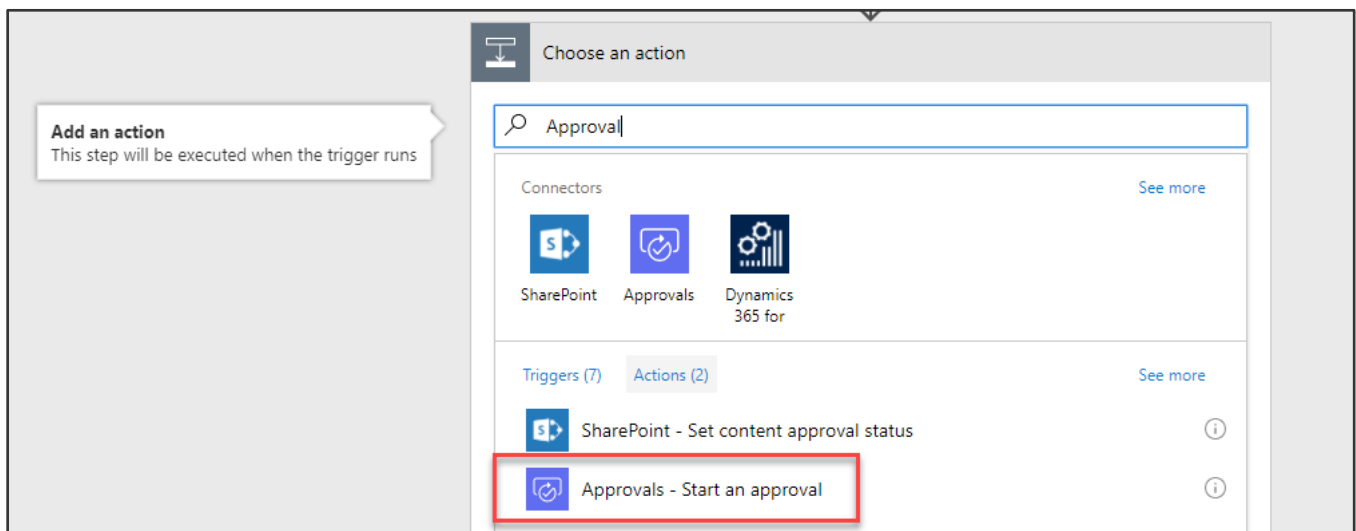
1. Click **+ New step** and select **Add an action**



2. Search for **Approval**.



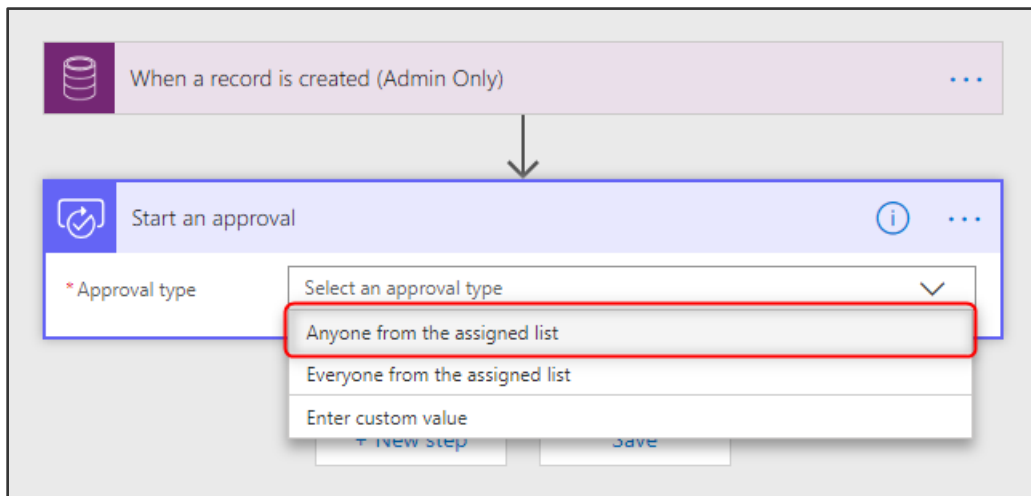
3. Select **Approvals – Start an approval**.



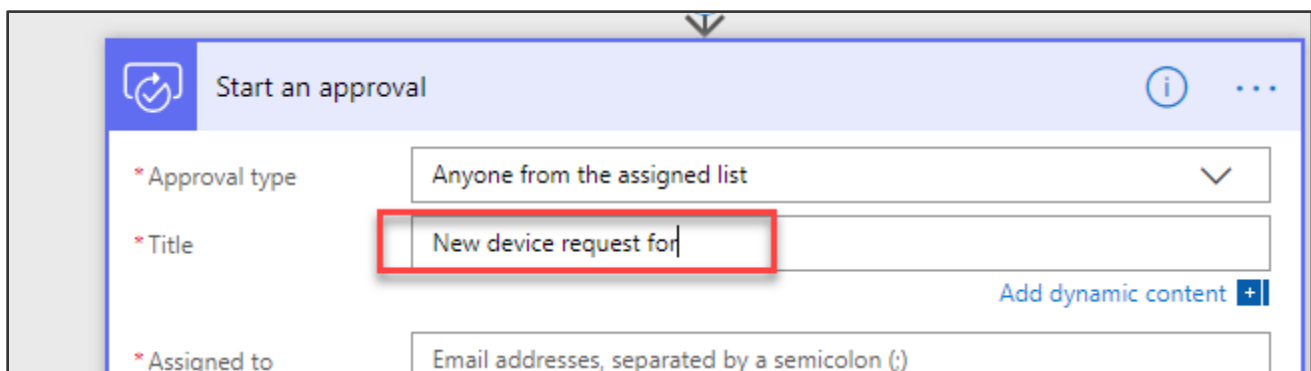
This will use the modern approval service. For more information see the blog post at <https://flow.microsoft.com/blog/introducing-modern-approvals/>.

4. Select **Anyone from the assigned list** for **Approval type**.

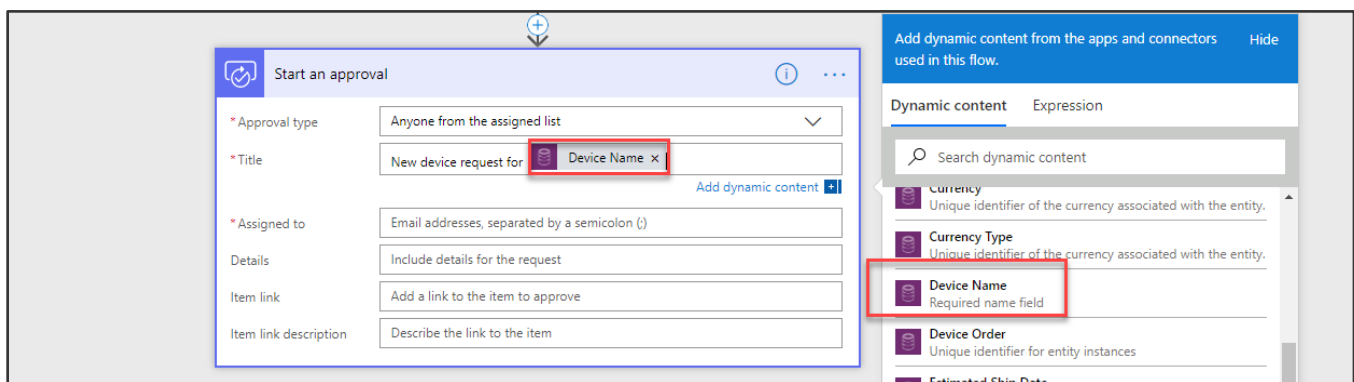




5. For the Title, we will add some text and one variable. This variable will contain the Device Name of the device order request. Enter **New device request for** in the **Title** text box.



6. Select **Device Name** for the **Dynamic content**.



**Note:** if the Dynamic content box is not visible, click the Add dynamic content button - 

7. Select the **Assigned to** field, and from the **Dynamic content**, click See More.

The screenshot shows the 'Start an approval' form. The 'Assigned to' field is highlighted with a red box. The 'Dynamic content' pane on the right is also visible, with the 'See more' link highlighted.

8. Select **Approver**

The screenshot shows the 'Start an approval' form. The 'Approver' field is highlighted with a red box. The 'Dynamic content' pane on the right is also visible, with the 'Approver' field highlighted.

You might get a warning message about this field being optional. Ignore it and ignore similar warnings in future.

**Note:** Recall from the earlier lab that this will be the approver's email address.

9. In the **Details** field, type **A new device has been requested** and hit <Enter>.

The screenshot shows the 'Start an approval' form. The 'Details' field is highlighted with a red box, containing the text 'A new device has been requested'. The 'Dynamic content' pane on the right is also visible.

10. Select **Device Name** from the Dynamic content pane.

**Start an approval**

\* Approval type: Anyone from the assigned list

\* Title: New device request for Device Name x

\* Assigned to: Approver x ;

Details: A new device has been requested  
Device Name x

Item link: Add a link to the item to approve

Item link description: Describe the link to the item

**Dynamic content**

Search dynamic content

- Department Contribution
- Department Contribution (Base)
- Device Name** (Required name field)
- Device Order

11. Type, \$ and select **Price**. You may need to click the "See More" option under the dynamic content search bar in order to see the Price option.

**Start an approval**

\* Approval type: Anyone from the assigned list

\* Title: New device request for Device Name x

\* Assigned to: Approver x ;

Details: A new device has been requested  
Device Name x, \$ Price x

Item link: Add a link to the item to approve

Item link description: Describe the link to the item

**Dynamic content**

Search dynamic content

- Owner Type
- Price** (Device Price)
- Price (Base)

12. Hit Enter and type **Department Contribution**

**Start an approval**

\* Approval type: Anyone from the assigned list

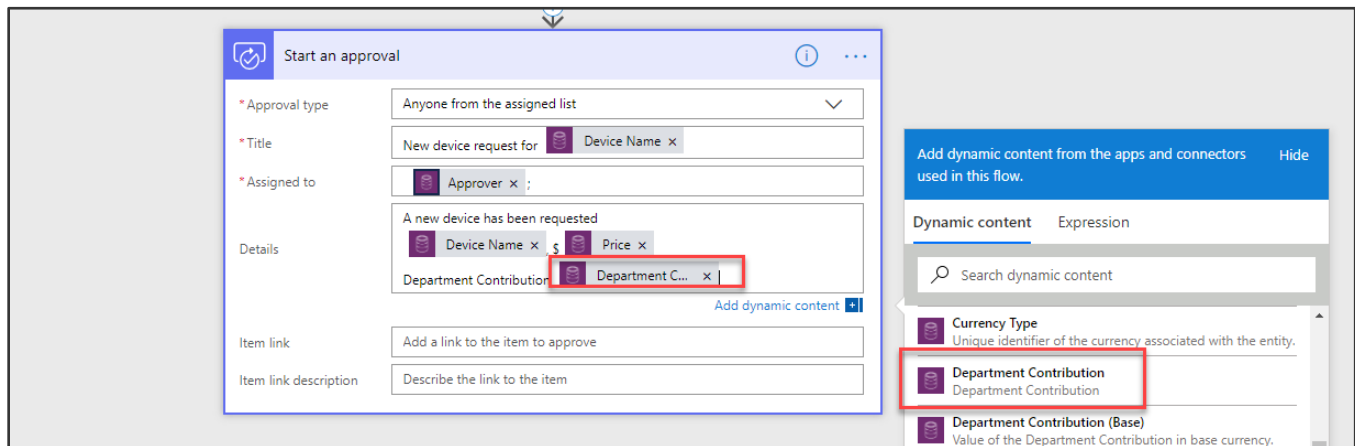
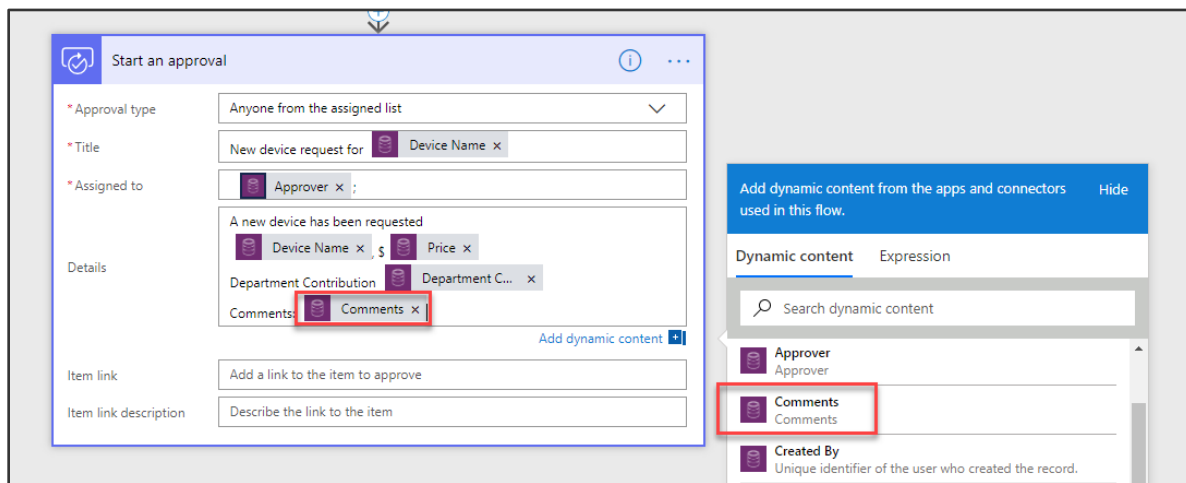
\* Title: New device request for Device Name x

\* Assigned to: Approver x ;

Details: A new device has been requested  
Device Name x, \$ Price x, Department Contribution

Item link: Add a link to the item to approve

Item link description: Describe the link to the item

13. Select **Department Contribution**.14. Hit <Return>, type **Comments**, and select **Comments**.15. Your **Action** will now look like the image below.

When a record is created (Preview) (Preview)

\* Organization Name: Default

\* Entity Name: Device Orders

\* Scope: Organization

Start an approval

\* Approval type: Anyone from the assigned list

\* Title: New device request for Device Name

\* Assigned to: Approver

Requestor: Add the email of the person generating this request

Details: A new device has been requested

Device Name, Price, Department Contribution, Department C..., Comments

Item link: Add a link to the item to approve

Item link description: Describe the link to the item

**Note:** When creating your own approval flows, you may additionally include a clickable link that will be displayed in the approval email. In this scenario, for example, you could include a link to view device details in an online catalogue. You would include the **Item link** and **Item link description**.

**Note:** You could also set the **Item link** to deep link into a PowerApps app to view more details about the request. In this scenario, you might pass an OrderID or a DeviceID as a URL parameter. PowerApps accepts URL parameters, see <https://powerapps.microsoft.com/tutorials/function-param/> for more details.

16. Change the **flow** name to **Device approval request** and click **Save**.

Device approval request

Save Test

When a record is created (Preview) (Preview)

\* Organization Name: Default

\* Entity Name: Device Orders

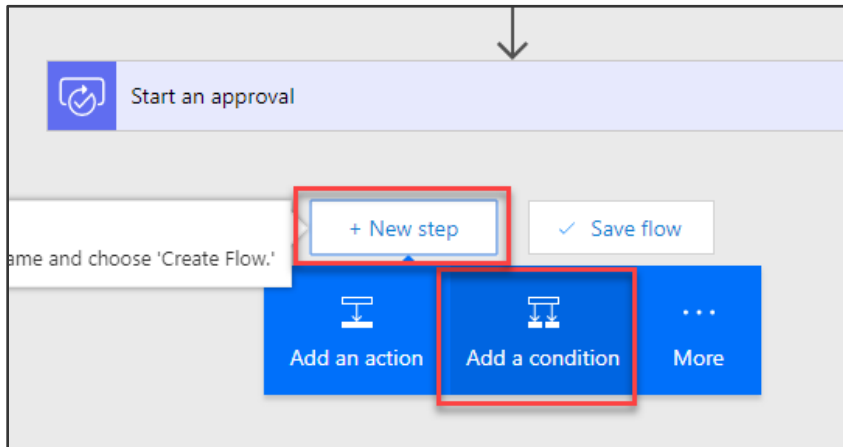
\* Scope: Organization

## Exercise 2: Conditional Logic

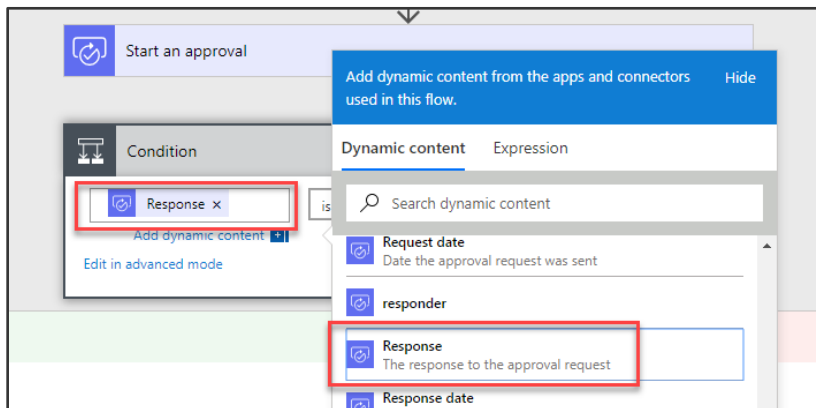
In flow, you can add conditions to take different actions depending on a certain result, in this case, whether the request was approved or rejected.

### Task 1: Add conditional logic to flow

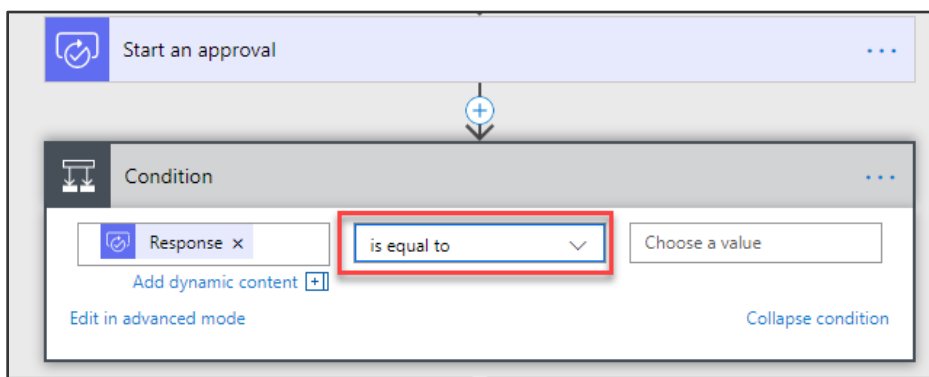
1. Click **+ New step** and select **Add a condition**.



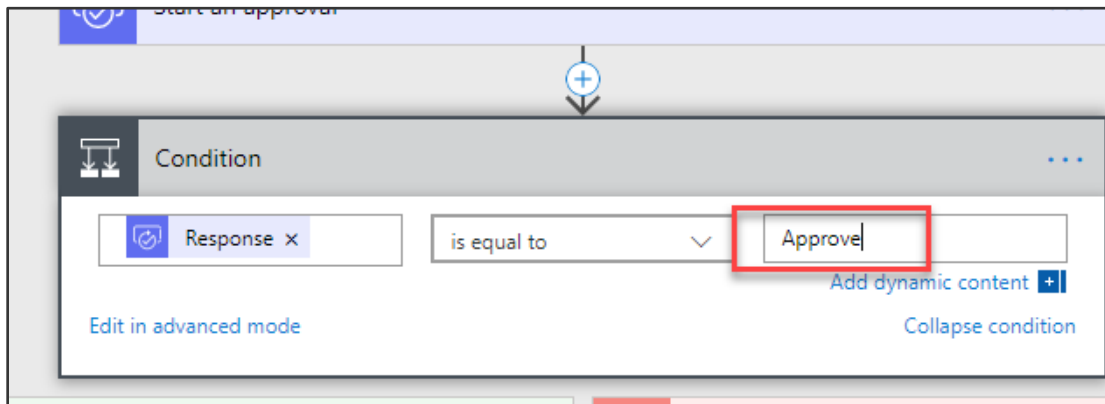
2. Click in the left edit box that says, "Choose a value" and select **Response** from the dynamic content pane. You may need to press the "+" icon below the edit box to hide the dynamic content pane.



3. Select **is equal to** for condition.



4. Type Approve for value.



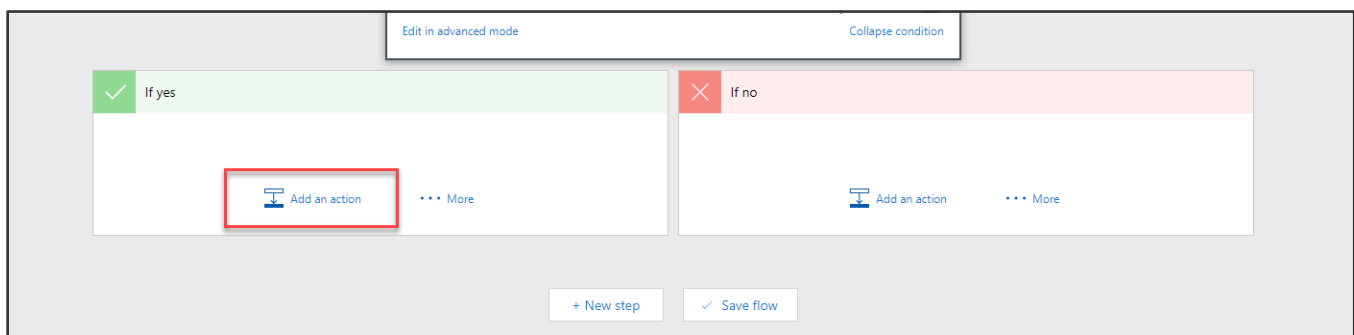
## Task 2: Add conditional logic to flow

We will now configure what actions to perform if the response is approved or not – YES branch vs. NO branch.

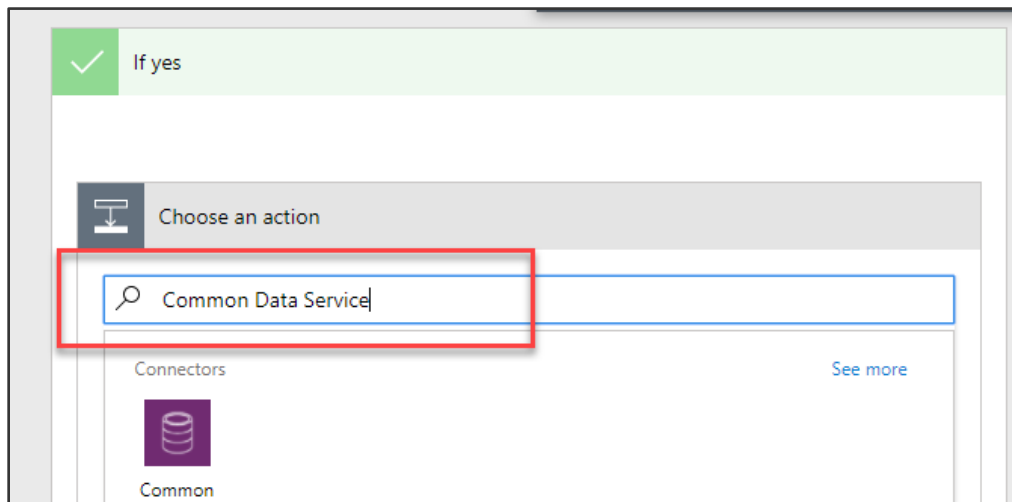
We will add two actions:

- a. Update the record in the Device Order table
- b. Send an email to the employee who requested the device

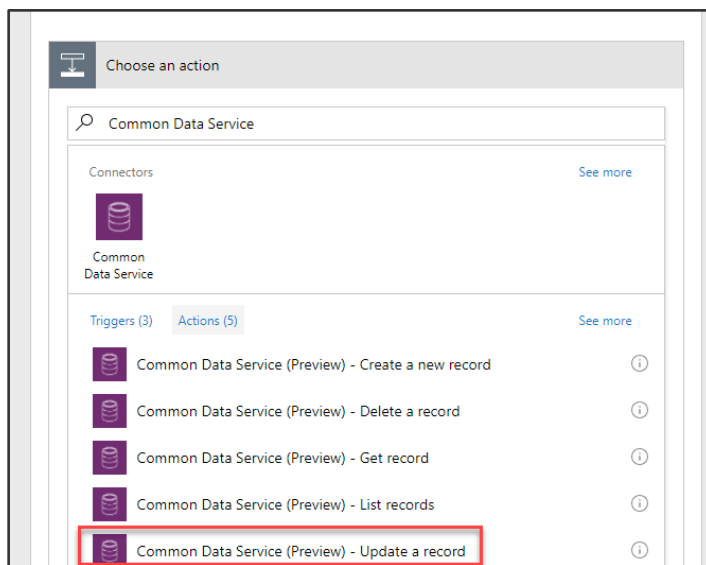
1. In the left **If yes** box, click **Add an action**



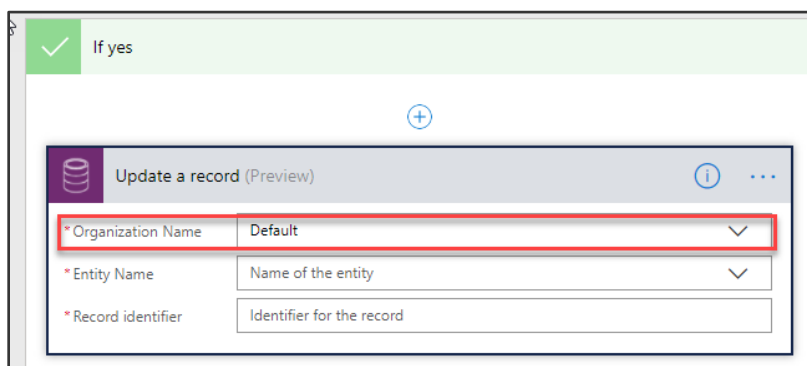
2. Search for **Common Data Service**.



3. Select Common Data Service – Update a record



4. Select **Default** for **Organization Name**.



5. Select **Device Orders** for **Entity Name**.



Update a record (Preview)

\* Organization Name: Default

\* Entity Name: Device Orders

\* Record identifier: Identifier for the record

Device Name: Required name field

Price: Device Price

6. Select **Device Order** for **Record identifier**.

Update a record (Preview)

\* Organization Name: Default

\* Entity Name: Device Orders

\* Record identifier: Device Order

Device Name: Required name field

Price: Device Price

Dynamic content pane:

- Currency type: Unique identifier of the currency associated with the entity.
- Device Name: Required name field
- Device Order: Unique identifier for entity instances
- Estimated Ship Date

This is the unique lookup ID for the record that was created.

- Click **Show advanced options** which can be found in blue text below the title field.
- Select **Approve** from the **Approval Status Value** drop-down.

Update a record (Preview)

\* Organization Name: Default

\* Entity Name: Device Orders

\* Record identifier: Device Order

Device Name: Required name field

Price: Device Price

Approval Status Value: Approve

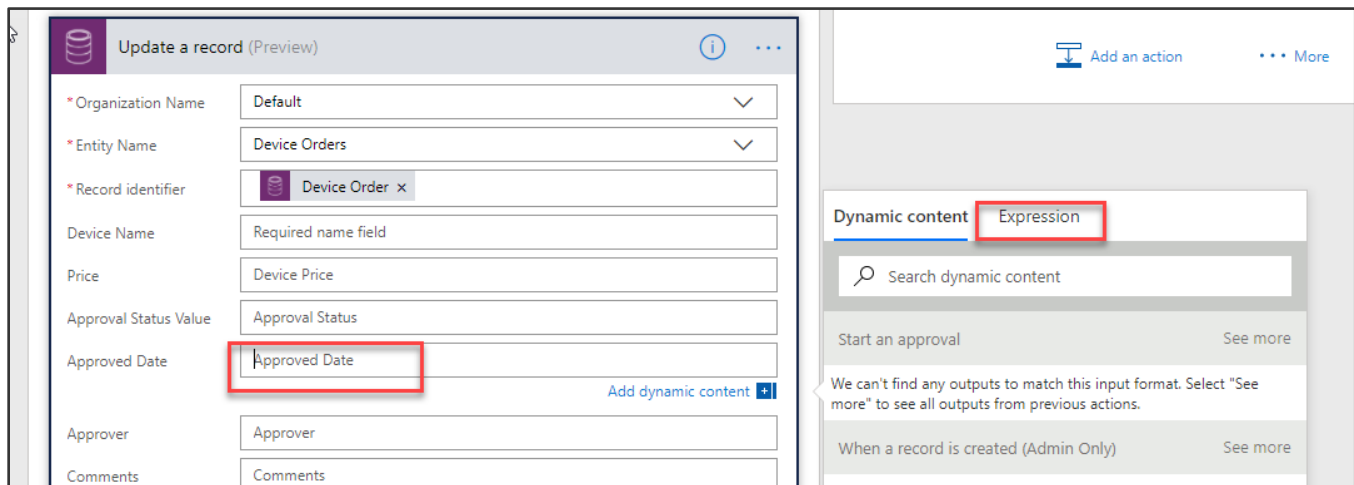
Approved Date: Approved Date

Approver: Approver

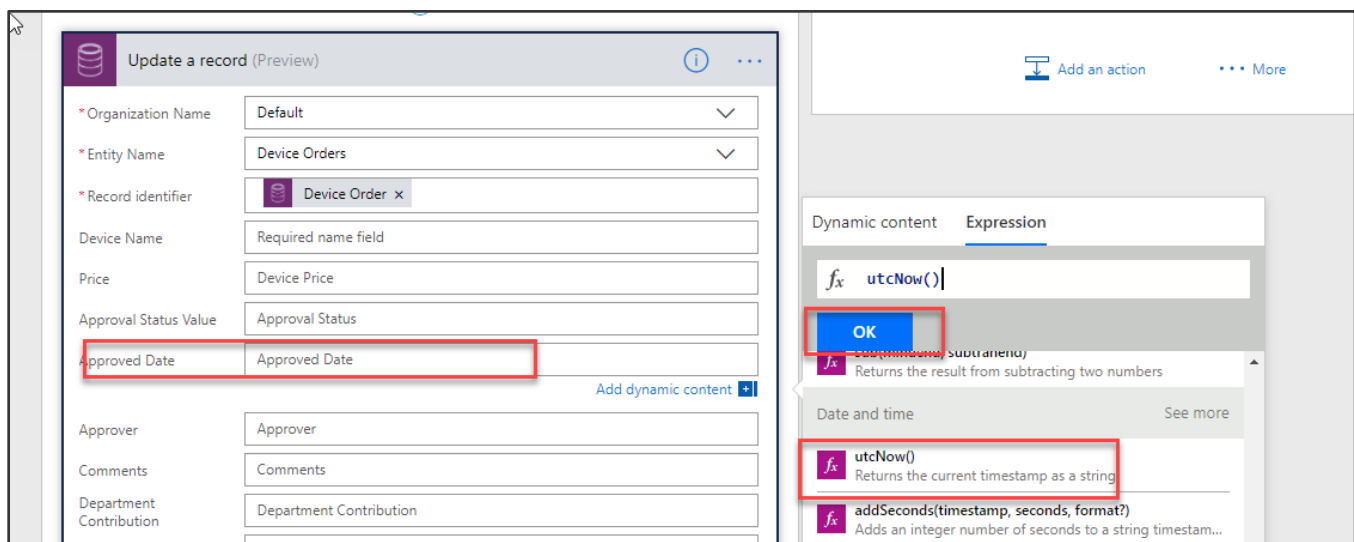
Capital Approved: Capital Approved

Comments: Comments

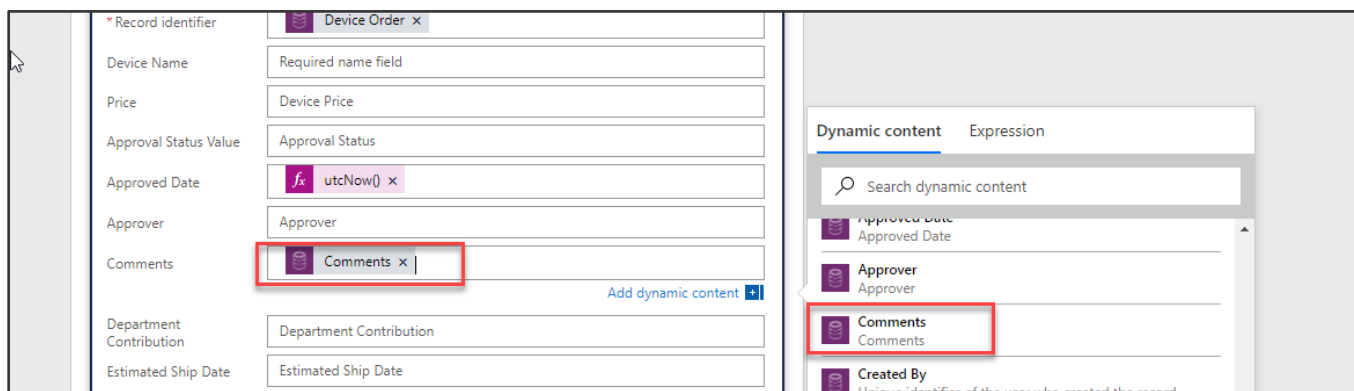
- Select the **Approved Date** field and select the **Expression** tab.



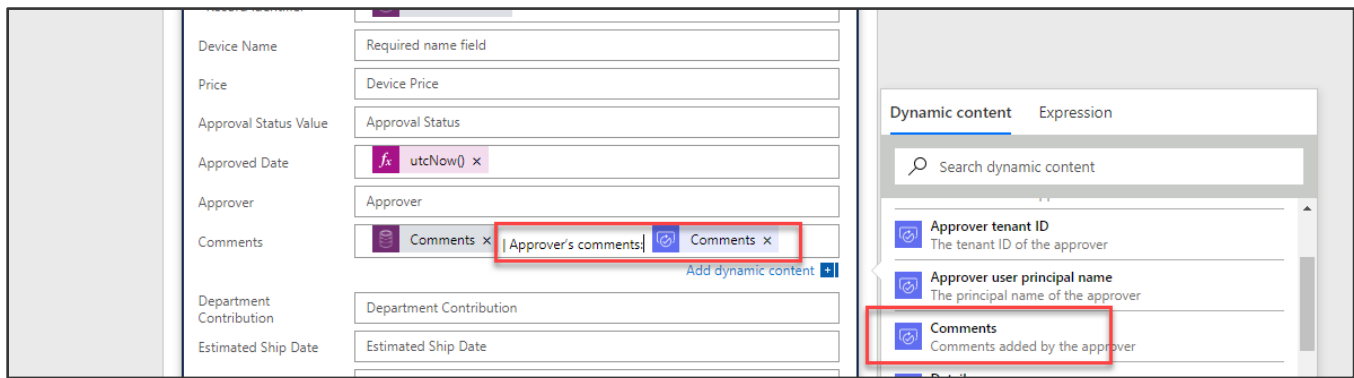
10. Select **utcNow()** and click **OK**.



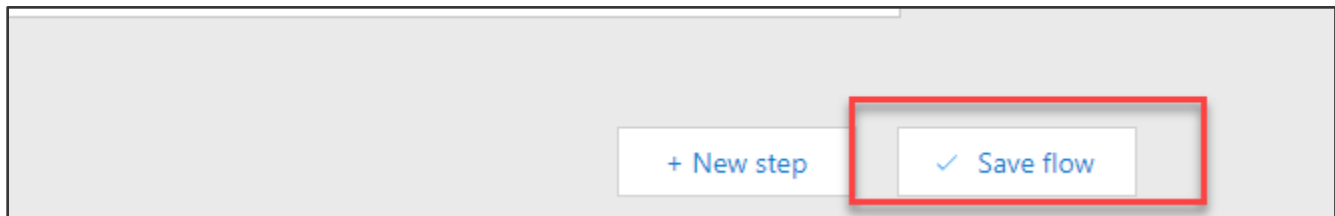
11. In the Comments field, we want to preserve the earlier comments and append on the comments from the approver. Select the **Comments** field and select **Comments**.



12. Type | **Approver's comments:** and select the Approver **Comments**.



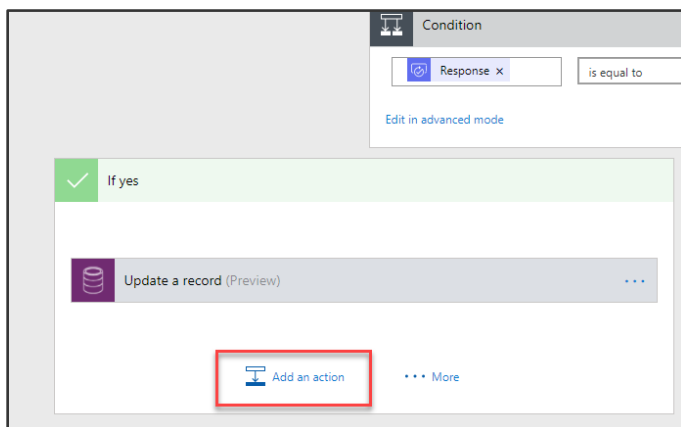
13. Save the flow.



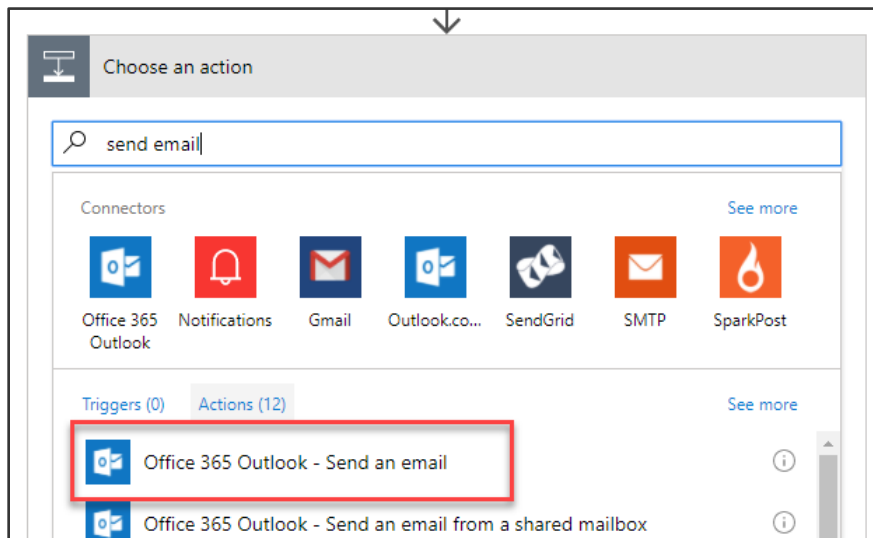
### Task 3: Add another action

You will now add the send email action to the If Yes branch.

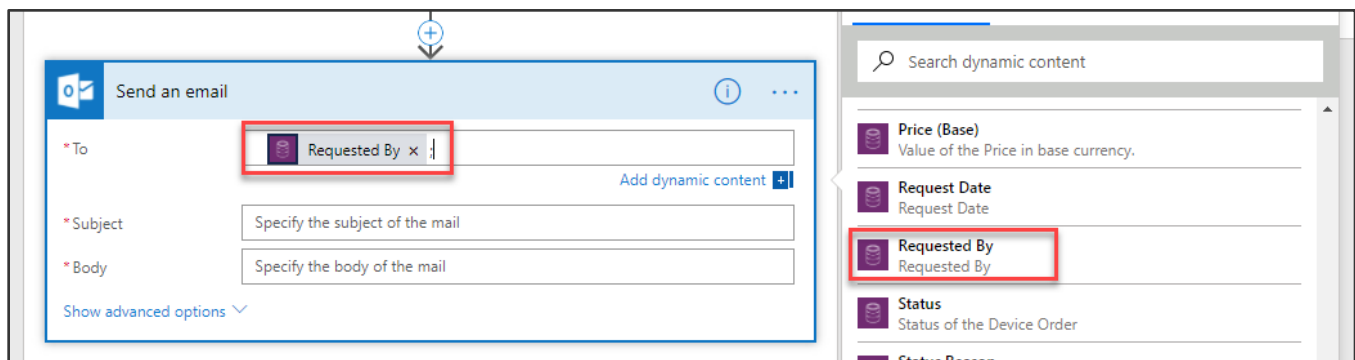
1. From within the yes branch, Click **Add an Action**.



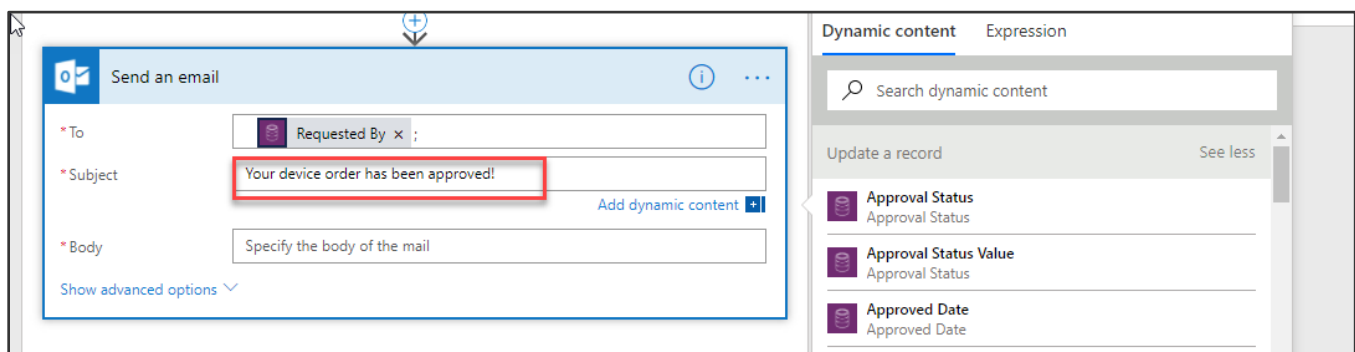
2. Search for **send email** and select **Office 365 Outlook - Send an email**.



3. Select **Requested By** for **To**.



4. Type **Your device order has been approved!** for **Subject**.



5. Set the Body value as shown below.

Send an email

\* To: Requested By x ;

\* Subject: Your device order has been approved!

\* Body: Your device order for <b> Device Name x </b> has been approved by Approver name x .  
Approver's comments: Comments x .  
Estimated Ship Date: Estimated Ship... x

Show advanced options v

6. Click **Show advanced options**.

Send an email

\* To: Requested By x ;

\* Subject: Your device order has been approved!

\* Body: Your device order for <b> Device Name x </b> has been approved by Approver name x .  
Approver's comments: Comments x .  
Estimated Ship Date: Estimated Ship... x

Add dynamic content +

Show advanced options v

7. Set **Is HTML** to **Yes**.

BCC: Specify email addresses separated by semicolons like someone@contoso.com

Attachments Name: Attachment name

Attachments Content: Attachment content

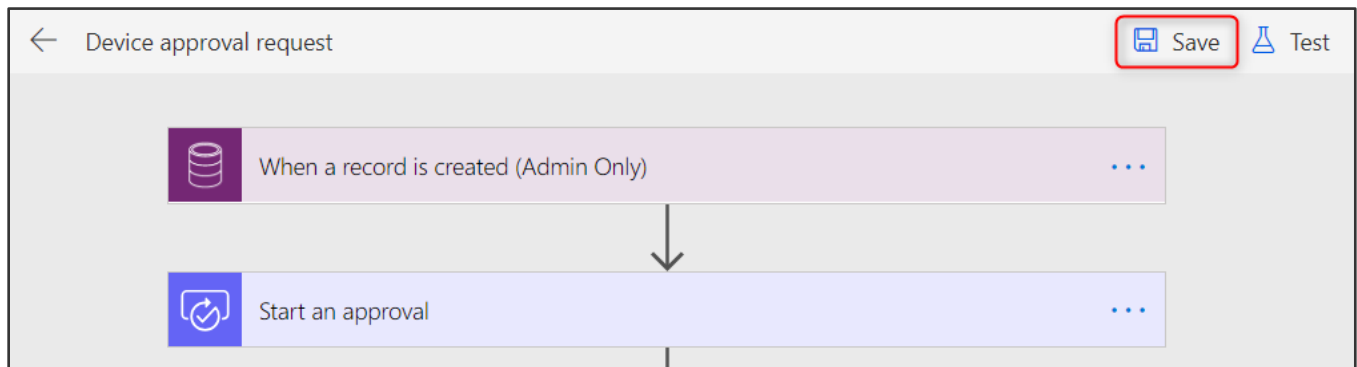
Importance: Importance v

Is HTML: Yes v

Hide advanced options ^

**Note:** If you do not have an Office 365 mailbox setup, you can use one of the other connectors to send the email, such as Outlook.com, Gmail or SendGrid.

8. Click **Save**.



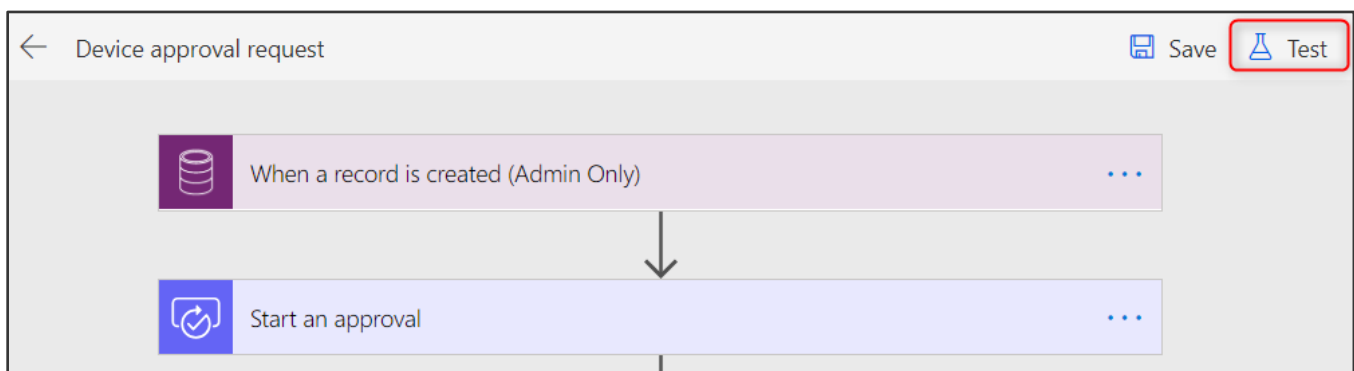
## Exercise 3: Test the Flow

To test the flow, you will:

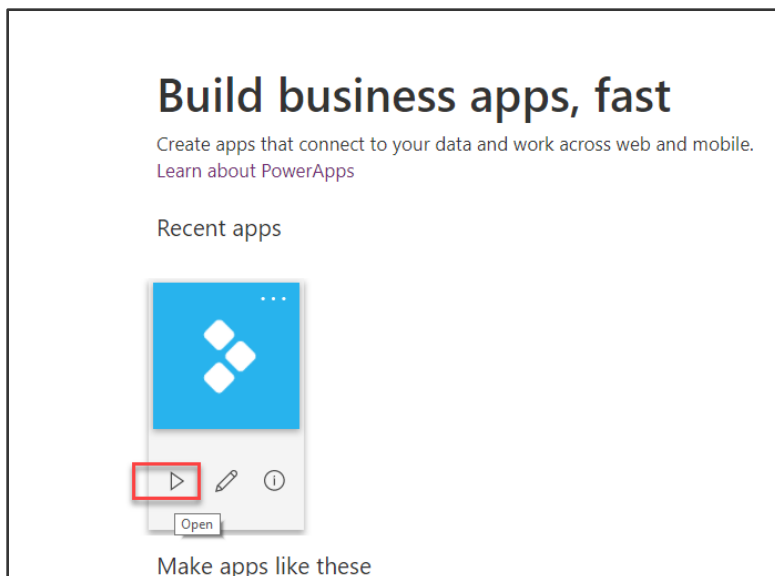
- Run the Device Ordering app and submit an approval request
- Verify the request was sent to the approver
- Approve the request
- Verify that the Common Data Service record was updated, and an email was sent back to the requestor

### Task 1: Test the Flow

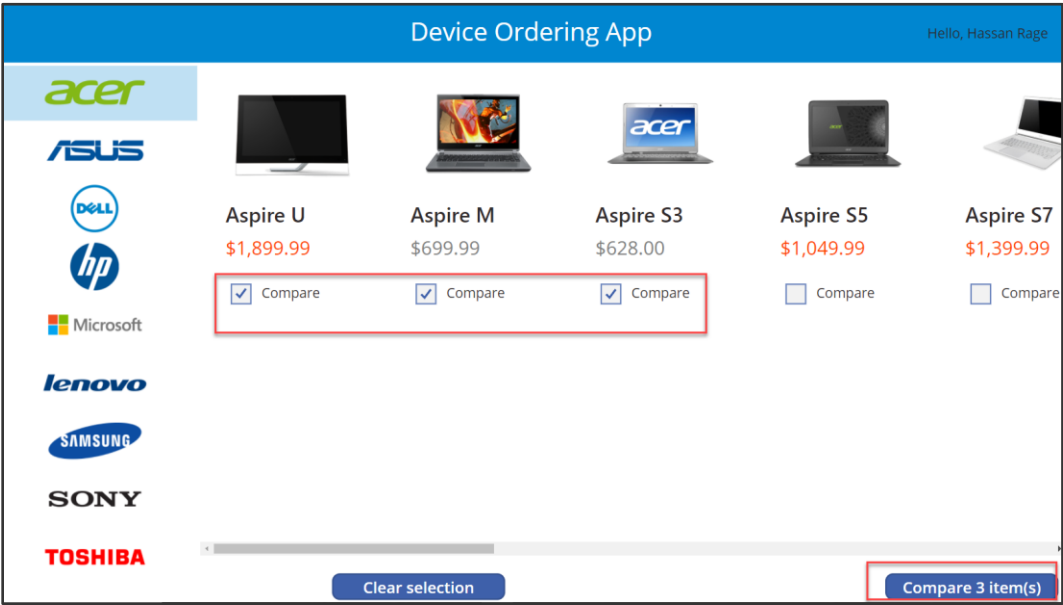
**Note:** When a new device record is added to the Device Order entity in CDS, it may take up to ten minutes for the flow to trigger. To ensure the flow runs immediately, select the **Test** option in the top right and select the **"I'll perform the trigger action"** option. Then go ahead and submit a device request. The flow should run immediately.



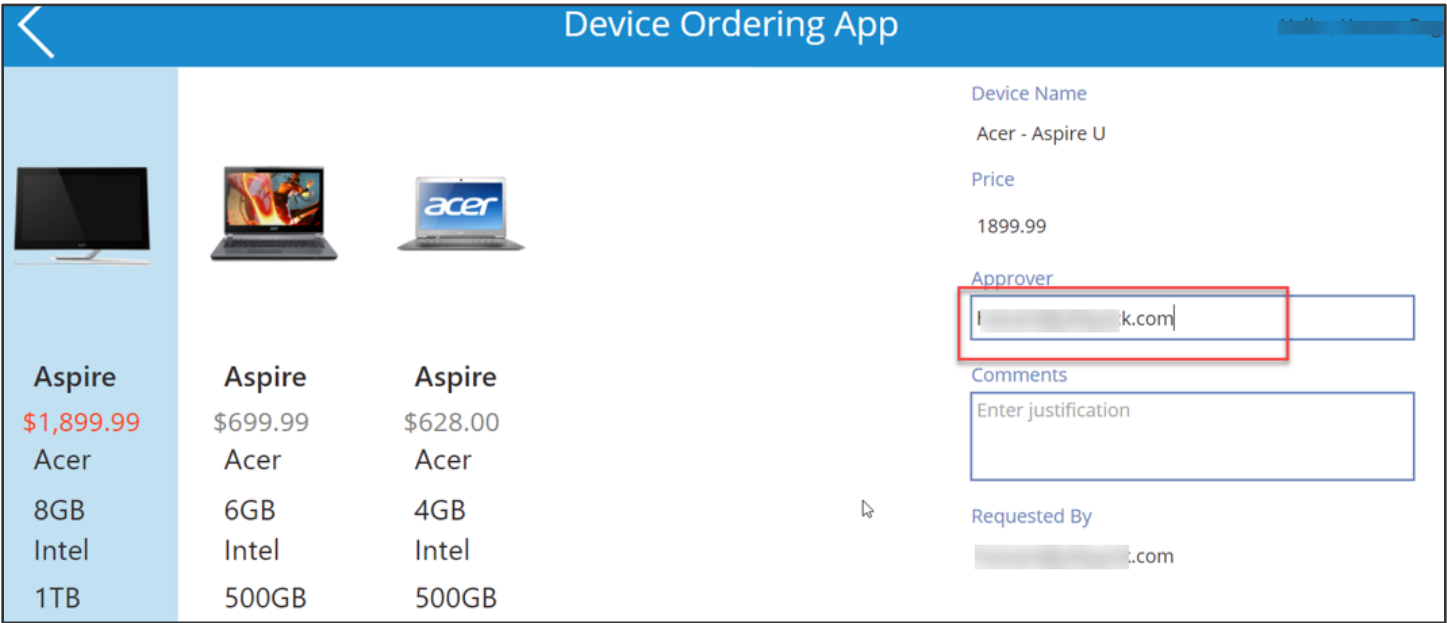
- To submit a device request, go to <http://web.powerapps.com> and run the Device Ordering App.



2. Select a few devices and click Compare.




3. Select one of the devices, provide email for Approver.







4. Provide a comment and click Submit device request.



**Aspire**  
**\$1,899.99**  
Acer  
8GB  
Intel  
1TB  
15.6



**Aspire**  
\$699.99  
Acer  
6GB  
Intel  
500GB  
15.6



**Aspire**  
\$628.00  
Acer  
4GB  
Intel  
500GB  
13.3

Device Name  
Acer - Aspire U

Price  
1899.99

Approver  
[redacted]ck.com

Comments  
I need this device for my super work!

Requested By  
[redacted]k.com

**Submit device request**

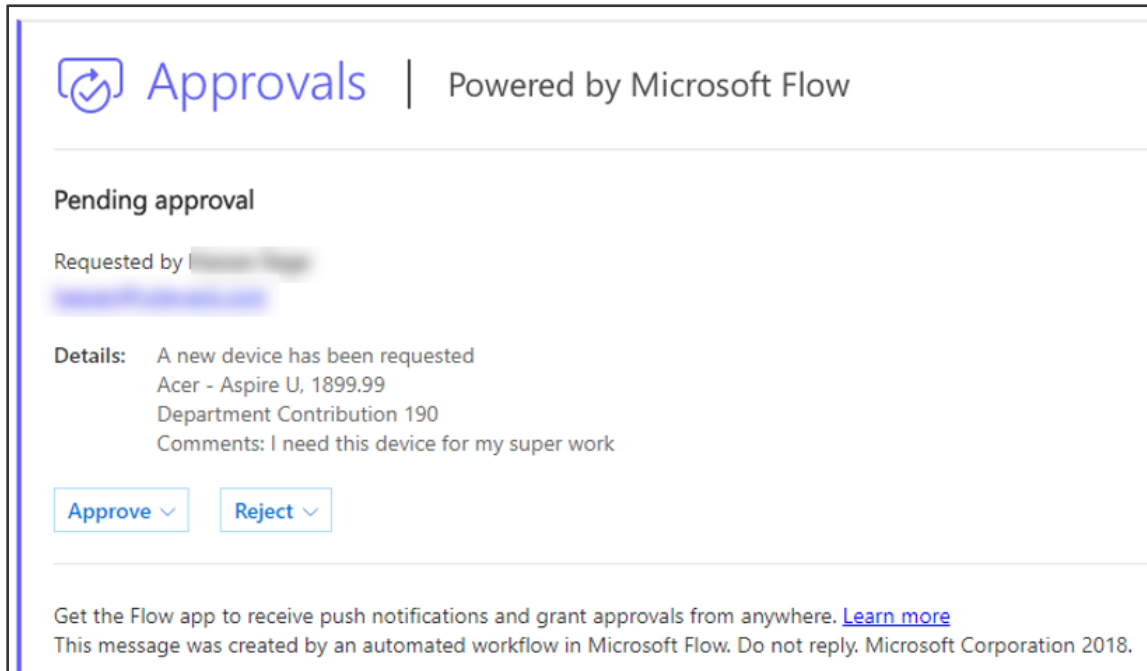
5. Click OK.

Your device request has been successfully submitted. Thank you."

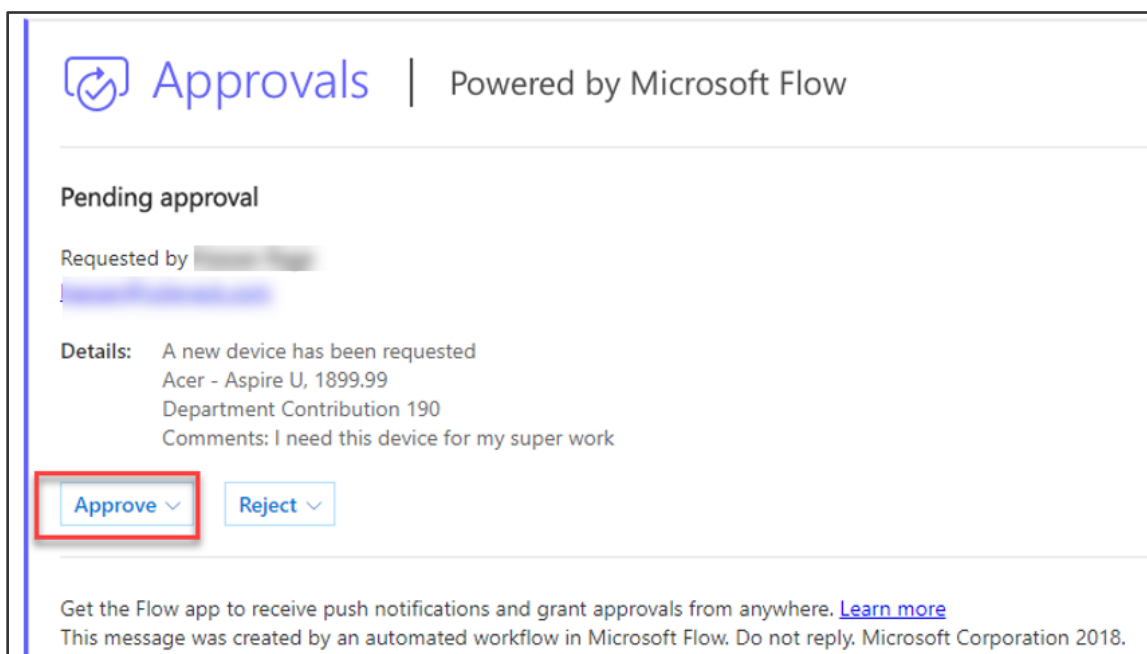
**OK**

6. The flow will run and send email to the manager email you provided. The request for approval email will look like the image below; it will include **Device information**, **Price**, **Department Contribution (the calculated field)**, and the **Requester Comment**.

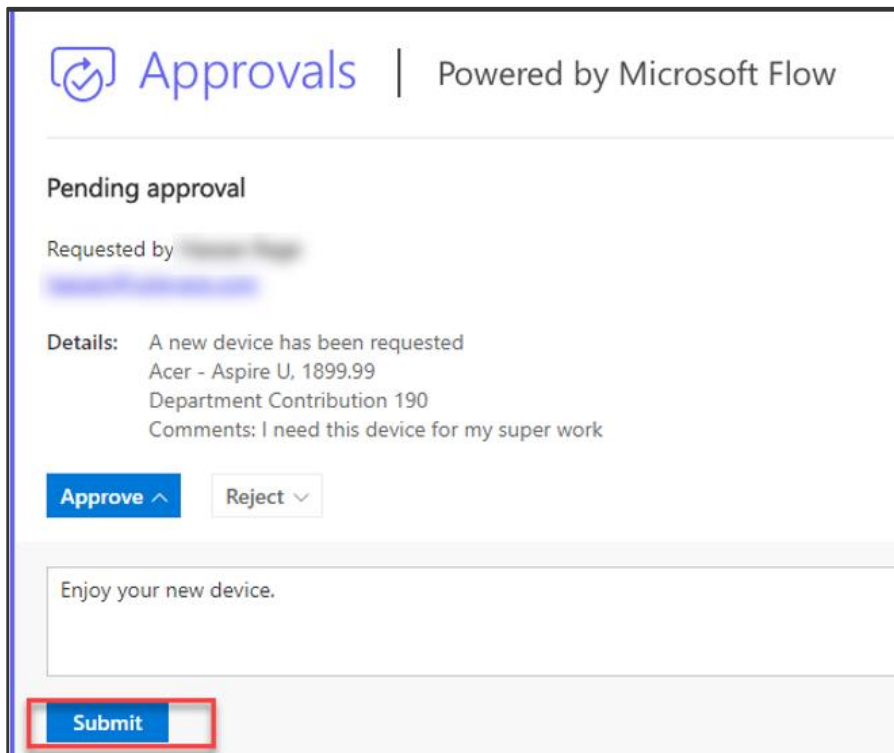
**REMINDER:** If the flow does not run immediately, please wait, it may take up to ten minutes for the flow to be triggered. To ensure the flow runs immediately, see note above - select the **Test** option in the top right and select the "I'll perform the trigger action" option. Then go ahead and submit a device request. The flow should run immediately.



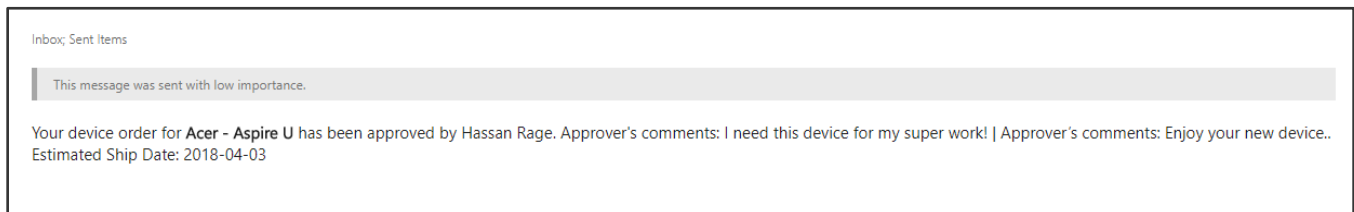
7. Click **Approve**.



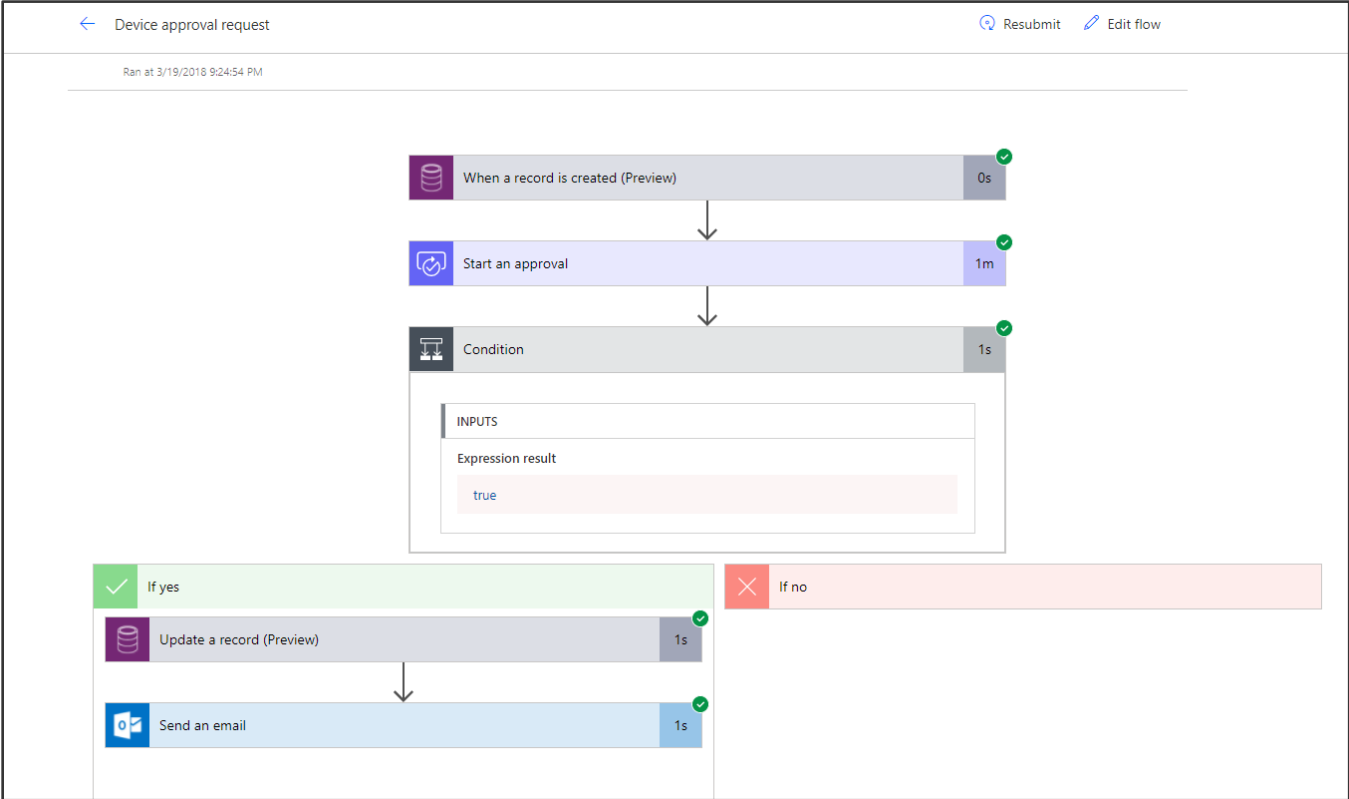
8. Add a comment and click **Submit**.



9. The flow will continue to run; it will update the record and send an email to the requestor. The email sent to the requester will look like the image below.



10. Check the flow dashboard; you will notice that the flow is now marked as **Succeeded** in the run history.

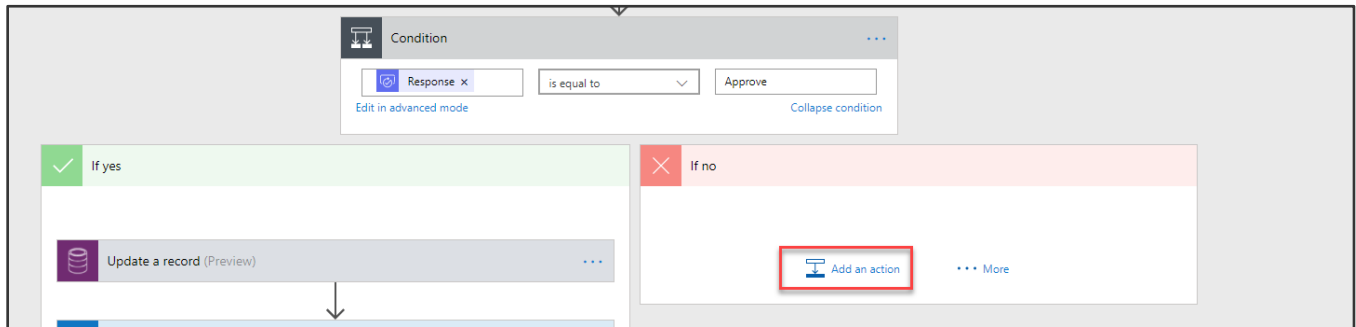


## Exercise 4: Update the Flow

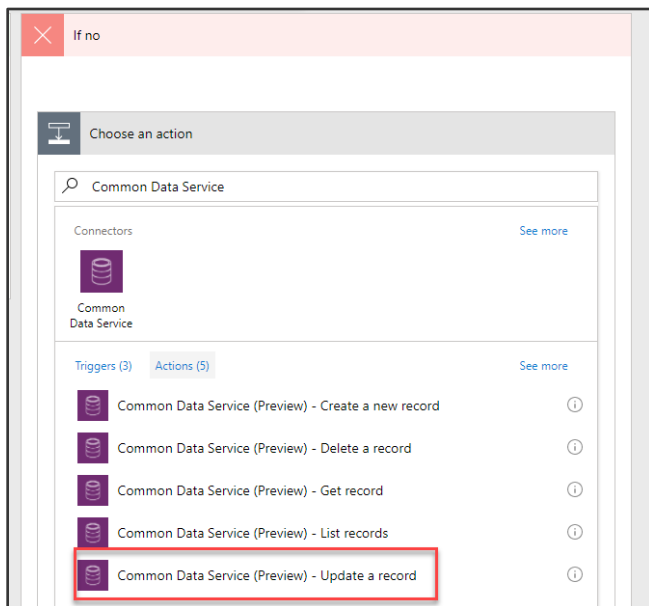
In this exercise, you will add two actions to the “if no” branch.

### Task 1: Add actions

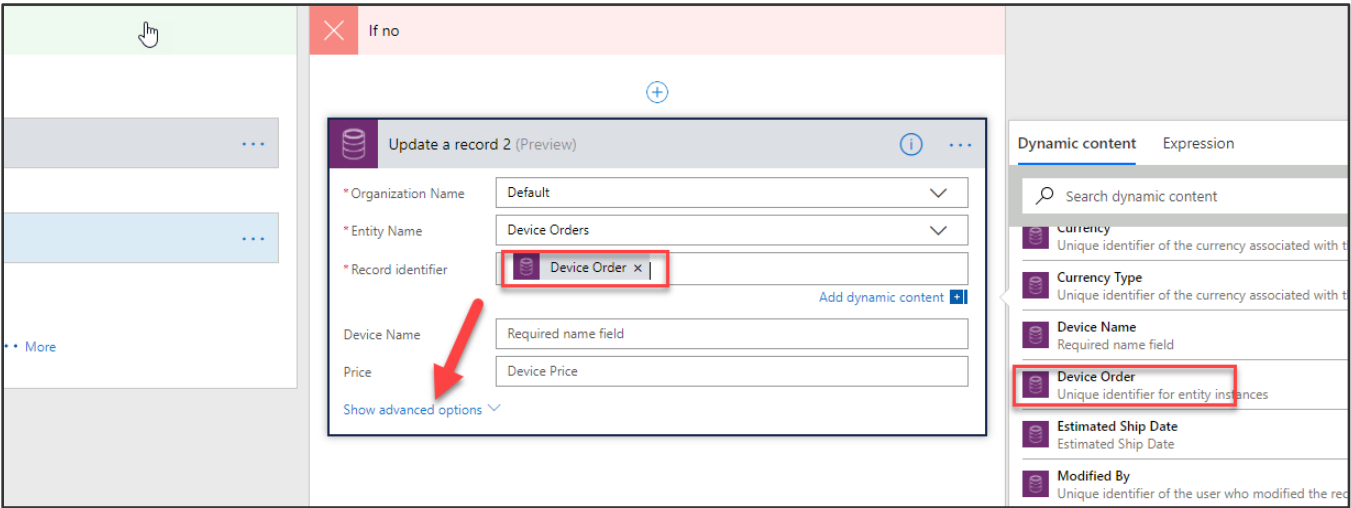
1. If you don't already have the flow open, open it in edit mode.
2. In the If no branch, click **Add an action**.



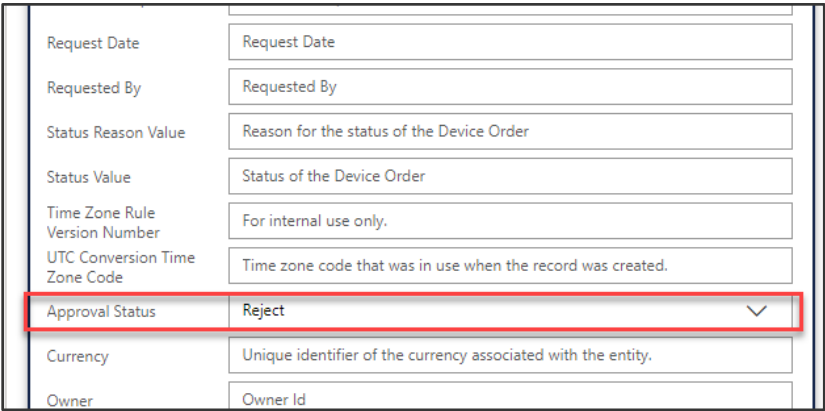
3. Search for **Common Data Service** and select **Common Data Service – Update a record**.



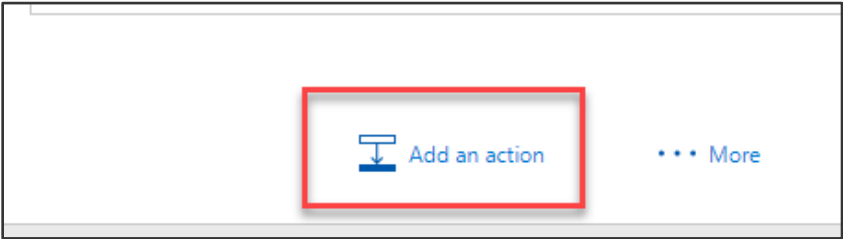
4. Select **Default** for **Organization Name**, **Device Orders** for **Entity Name**, select **Device Order** for **Record Identifier**, and click **Show advanced options**



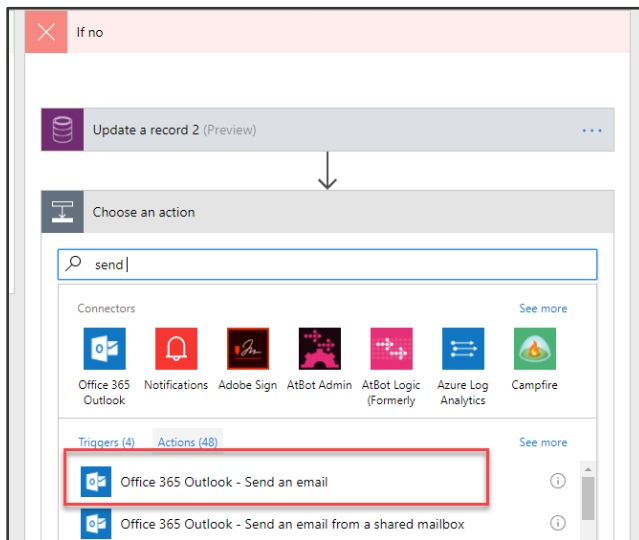
5. Select **Reject** for **Approval Status** value.



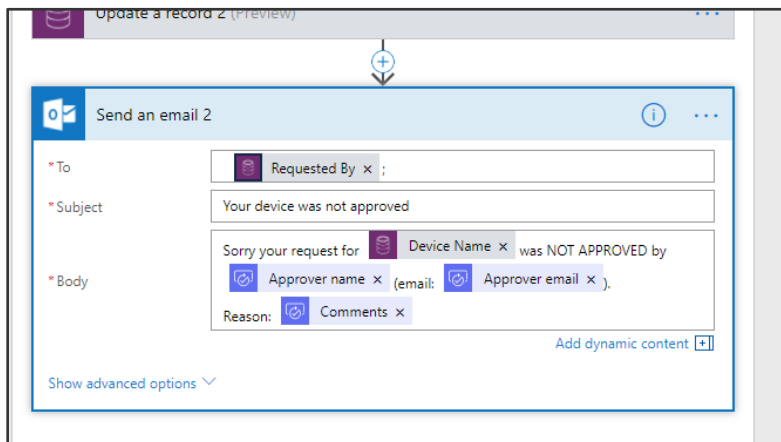
6. Click **Add an action**.



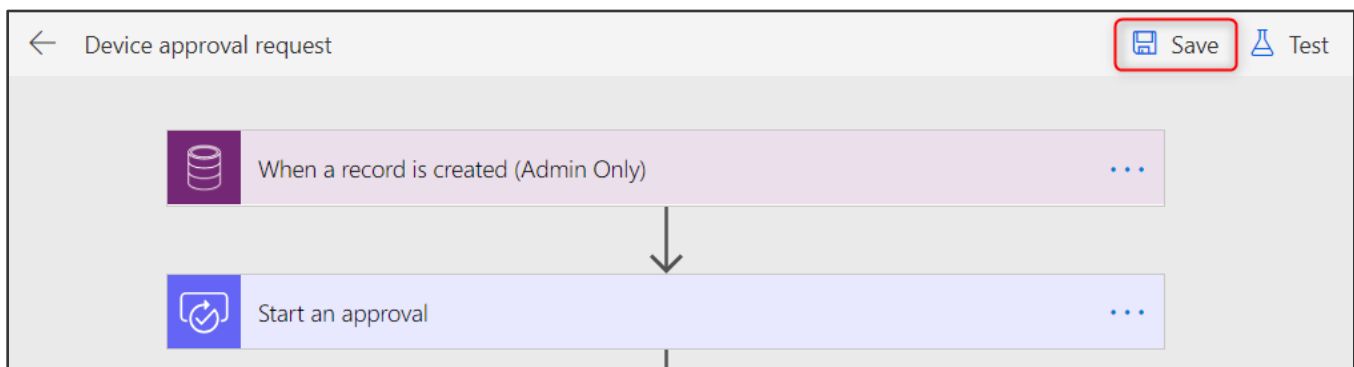
7. Search for **send email** and select **Office 365 Outlook Send an email**.



8. Provide the information shown on the image below. This will send an email to the requestor informing them that their device request was not approved.

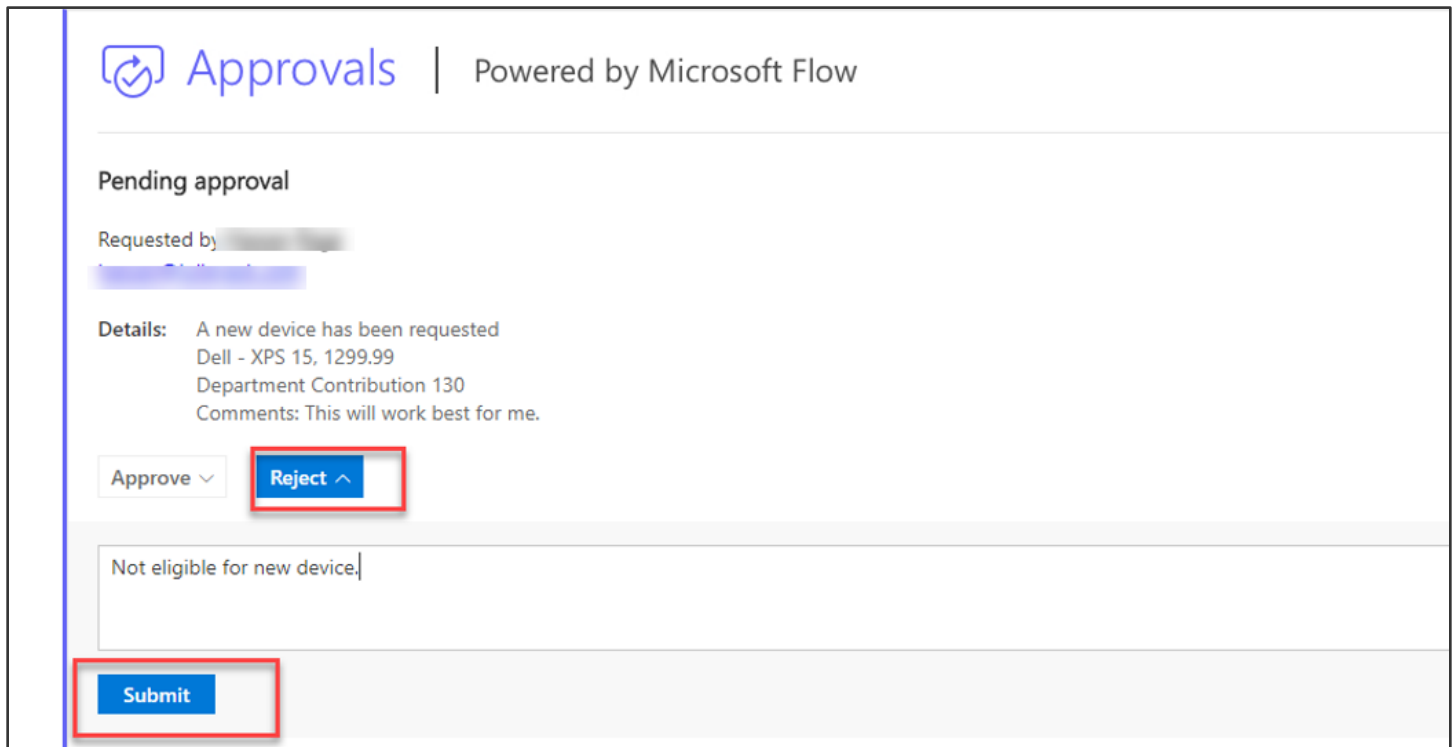


9. **Save** the flow.



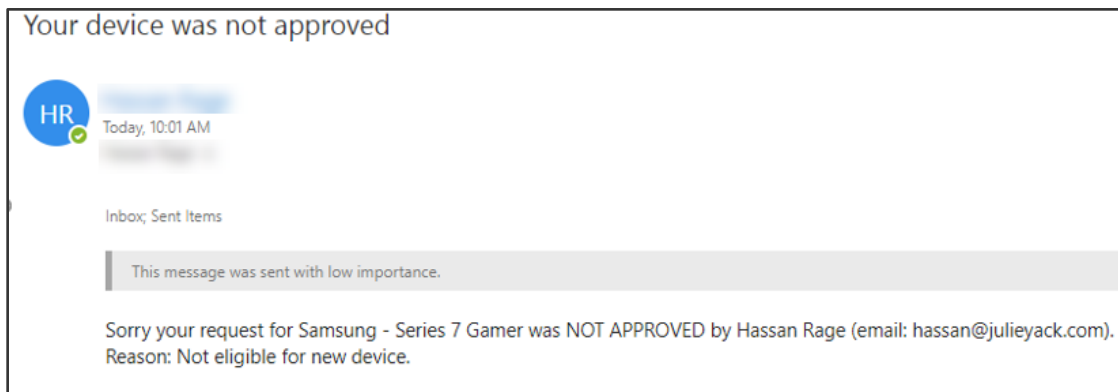
## Task 2: Test the updated Flow

1. Click **Test** in the top right of the flow editor.
2. Run the Device Ordering app -> Select a device and submit an approval request.
3. You should receive an email with options to Approve or Reject the request. Select **Reject** this time and enter some comments, such as "Not eligible for new device." Click Submit.



The screenshot shows the 'Approvals' section of a Microsoft Flow application. At the top, it says 'Approvals | Powered by Microsoft Flow'. Below this, there's a 'Pending approval' section. It shows 'Requested by' with a blurred name. Under 'Details', it says: 'A new device has been requested', 'Dell - XPS 15, 1299.99', 'Department Contribution 130', and 'Comments: This will work best for me.' There are two buttons: 'Approve' with a dropdown arrow and 'Reject' with an upward arrow. The 'Reject' button is highlighted with a red box. Below the buttons is a text input field containing 'Not eligible for new device.' At the bottom left, there is a 'Submit' button, also highlighted with a red box.

4. Confirm that the requestor receives an email informing them that their device approval request was rejected.



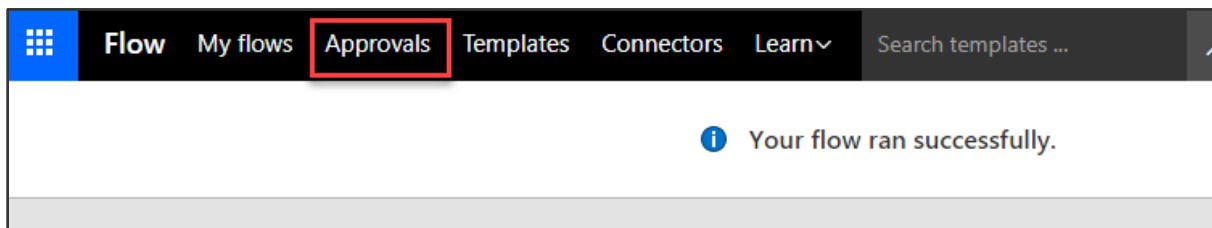


- Navigate to <https://web.powerapps.com> select Device Order entity and confirm that the **Device Order** entity record in the Common Data Service is updated with **Approval Status** set to **Rejected**.

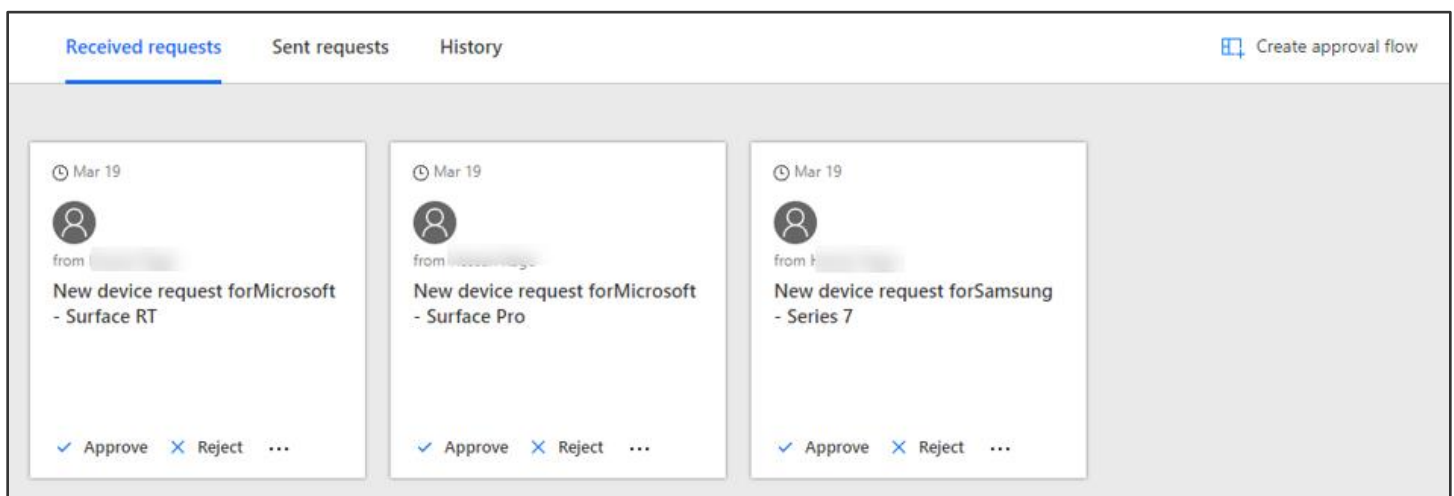
RY NAME	CREATED ON	ESTIMATED SHIP DATE	VERSION NUMBER	MODIFIED BY (DELEGATE)	RECORD CREATED ON	APPROVAL STATUS	STATUS	STATUS REASC
*	3/19/2018, 4:24 pm	4/2/2018, 8:57 pm	461.000			Approve	Active	Active
*	3/19/2018, 4:27 pm		451.676				Active	Active
*	3/19/2018, 10:22 pm		461.018			Reject	Active	Active

### Task 3: Visit the approval center

- Use the Device Ordering app to **submit a few more approval requests**.
- Go back to flow and select Approvals.



- Notice that all pending approval requests are visible.



- Go ahead and approve or reject a request from this screen. The details are displayed in the right pane where you can **enter comments** and **Confirm**.

Received requests Sent requests History

Mar 19

from [redacted]

New device request for Microsoft - Surface RT

✓ Approve ✗ Reject ...

Mar 19

from [redacted]

New device request for Microsoft - Surface Pro

✓ Approve ✗ Reject ...

Mar 19

from [redacted]

New device request for Samsung - Series 7

✓ Approve ✗ Reject ...

New device request for Microsoft - Surface Pro

From [redacted]@[redacted].com

Requested Mar 19, 2018 at 10:37 PM

Details

A new device has been requested  
Microsoft - Surface Pro, 899.99  
Department Contribution 90  
Comments: Test

Status

You have chosen to Approve this request.

Add comments (optional)

Nice device!

Confirm

8. The request will no longer be visible as it has been processed.

Received requests Sent requests History

Mar 19

from [redacted]

New device request for Microsoft - Surface RT

✓ Approve ✗ Reject ...

Mar 19

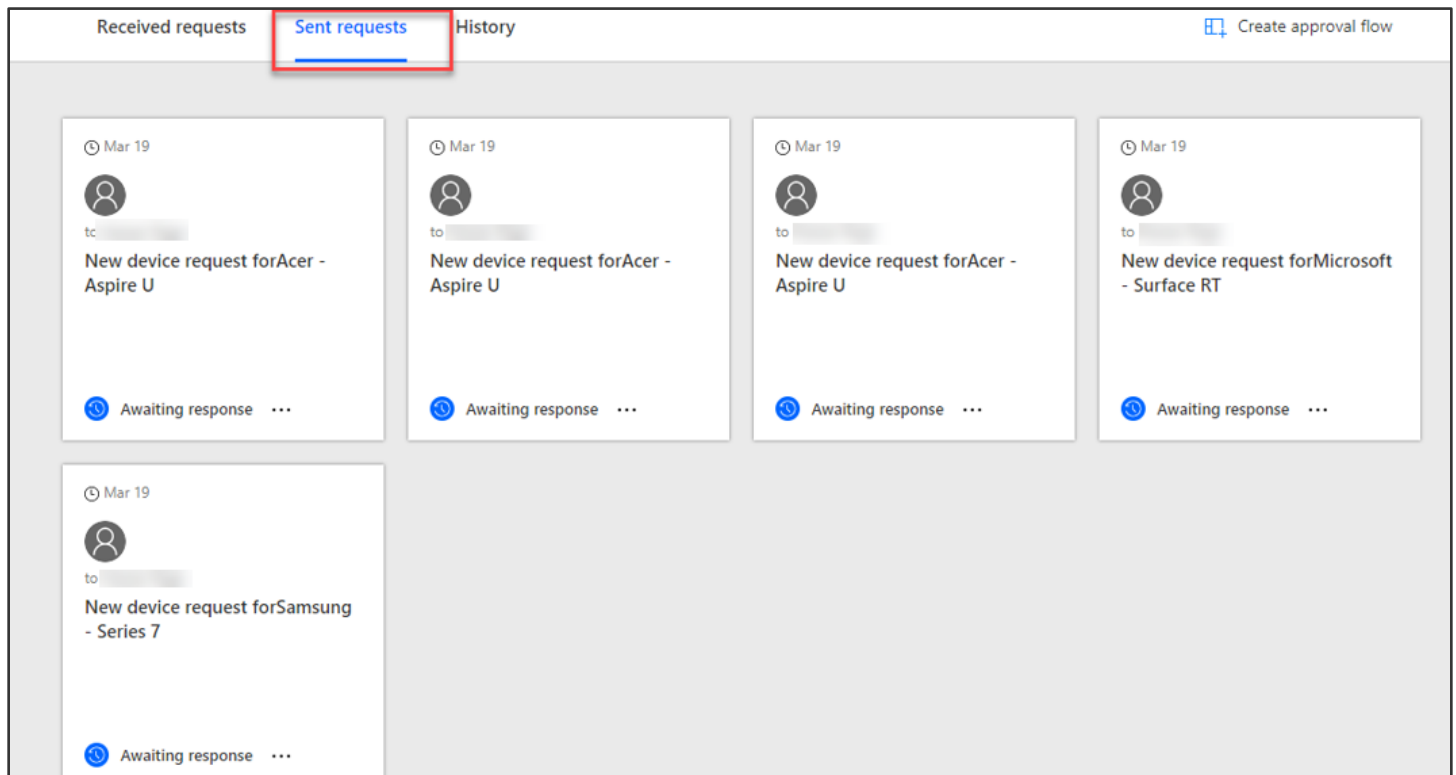
from [redacted]

New device request for Samsung - Series 7

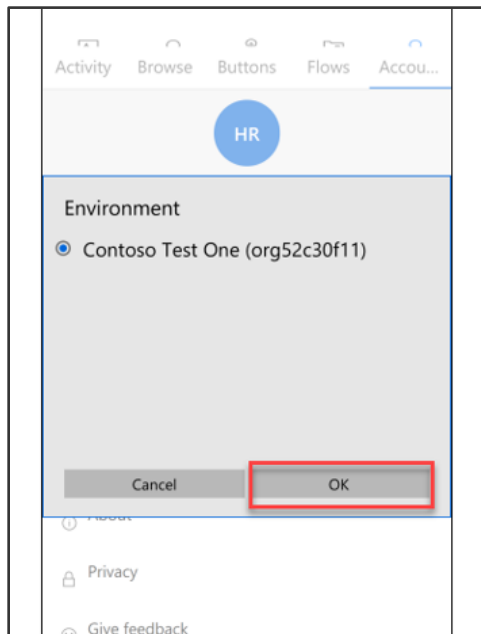
✓ Approve ✗ Reject ...

**Note:** All approval requests sent to the current logged on user will be visible in the Approvals Center. This includes approvals sent from any app or flow.

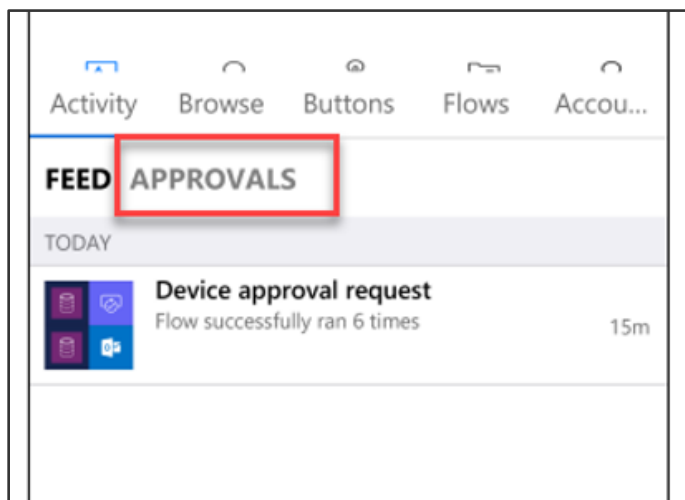
9. You can also use the Approvals Center to view all requests that you have sent and are **Awaiting response** from the approver. Select the **Sent requests** tab at the top to view all requests that you have sent.



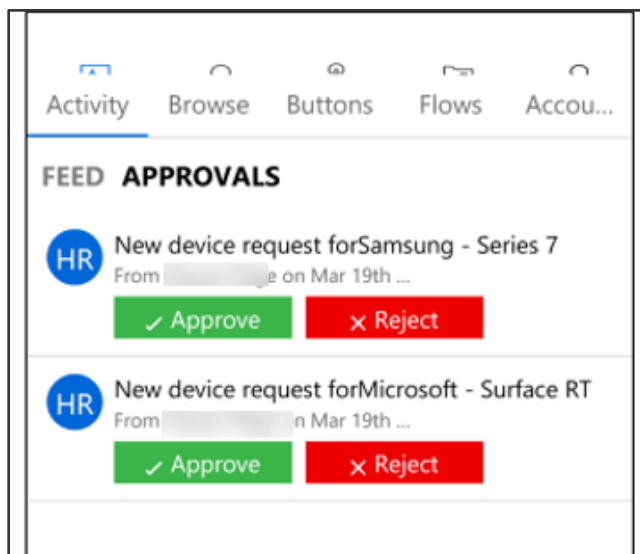
10. Open the **Microsoft Flow mobile app** on your mobile device.
11. Login and switch to the environment where the flow is deployed.



12. Select **Approvals** in the top right and view all pending approvals.



13. You can quickly approve or reject these pending requests from this screen.



14. If you have push notifications turned on and are signed into the Flow mobile app – when you receive a new Approval request it will trigger a push notification on your phone. You can give this a shot.

Congratulations! You have successfully completed this lab. You have created your PowerApps app and flow and connected them to a Common Data Service entity. Now you are ready to build your own apps and workflows.

# Lab survey

We would appreciate your feedback on the Business Application Platform technologies and on this hands-on-lab, such as the quality of documentation and the usefulness of the learning experience.

Please use the survey at <http://aka.ms/appinadayLabSurvey> to share your feedback.

You may provide feedback for each module as you complete it or at the end once you've completed all the modules. Thank you!

# References

App in a Day introduces some of the key functionalities available in PowerApps, Microsoft Flow, Power BI and the Common Data Service. For an up to date list of learning references, see <http://aka.ms/powerapps-resources> and <http://aka.ms/flow-resources> and <http://powerbi.com>.

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